

State of Washington

Current Contract Information

Effective date: October 7, 2004

This page contains key contract features. Find contract detailed information on succeeding pages. For more information on this contract or if you have any questions, please contact your local agency Purchasing Office or you may contact Office of State Procurement at the numbers listed below.

| | | | | | |
|----------------------------|--|---|---|------------------------|--------------|
| Contract number: | 07904 (replaces 06904 & 11103) | | | Commodity code: | 9620 |
| Contract title: | Road Snow and Ice Control Products | | | | |
| Purpose: | Added Category 7, CMA to product selection, added commodity codes, added Geneva Maintenance Site to Region 1, and added WSDOT Contacts for Regions. | | | | |
| Present Term: | September 1, 2004 through: August 31, 2005 | | | | |
| For use by: | General use: The primary purchaser(s) will be State Agencies and Participating Institutions of Higher Education (Colleges and Universities, Community and Technical Colleges), especially Washington State Department of Transportation (WSDOT) and the City of Spokane. The contract is available to political subdivisions and non-profit organizations which are members of the State of Washington Purchasing Cooperative (WSPC). A list of Washington members is available on the Internet http://www.ga.wa.gov/pca/cooplist.htm . Contractors shall not process state contract orders from unauthorized purchasers. | | | | |
| Contract type: | This contract is designated as mandatory use. | | | | |
| Scope of contract | This contract is awarded to multiple contractors. | | | | |
| Contractors: | <u>AMERICA WEST ENVIRONMENTAL SUPPLIES, INC.</u> <u>CARGILL DEICING TECHNOLOGY</u> <u>CRYOTECH DEICER</u> <u>DUSTBUSTERS, INC.</u> <u>ENVIROTECH SERVICES, INC.</u> | | | | |
| Available Products: | PNS Category 1, Liquid Magnesium Chloride. | Contractor: Dustbusters Inc. | Product: FreezGard Zero-CI Plus | Commodity Code: | 9620-013-090 |
| | PNS Category 2, Liquid Corrosion Inhibited Calcium Chloride | Contractor: America West Environmental Supplies, Inc. | Product: Geomelt C | Commodity Code: | 9620-030-010 |
| | PNS Category 4, Corrosion Inhibited Sodium Chloride. | Contractor: Cargill Deicing Technology | Product: ClearLane PNS | Commodity Code: | 9620-011-200 |
| | PNS Category 8a, Solid Non Corrosion Inhibited Sodium Chloride, contains moisture less than 0.5% | Contractor: Cargill Deicing Technology | Product: Cargill Dry Salt | Commodity Code: | 9620-003-020 |
| | PNS Category 8b, Solid Non Corrosion Inhibited Sodium Chloride, contains moisture less than 5.0% | Contractor: Envirotech Services, Inc | Product: IceSlicer RS Anti-caking Agent - YPS | Commodity Code: | 9620-002-025 |
| | PNS Category 7, Solid Calcium Magnesium Acetate | Contractor: Cryotech Deicing Technology | Product: Cryotech CMA (R) | Commodity Code: | 9620-011-100 |

Visit our Internet site: <http://www.ga.wa.gov/purchase>

Office of State Procurement:

| | | | |
|----------------------------|--|-------------------------|--|
| State Procurement Officer: | Mark T. Gaffney | State Office Assistant: | Julie Hendricksen |
| Phone Number: | (360) 902-7424 | Phone Number: | (360) 902-7439 |
| Fax Number: | (360) 586-2426 | Fax Number: | (360) 586-2426 |
| Email: | mgaffne@ga.wa.gov | Email: | psandst@ga.wa.gov |

| | | | | |
|------------------------------|---|----------------|--------------------------|-------------------|
| Ordering information: | See Contractor pages. | | | |
| Special notes: | Free On Board (FOB) destination, freight prepaid and included in price bid for product delivered to any location within WA. For Political Subdivision locations not listed in the contract, the product pricing listed for the nearest identified location shall apply. | | | |
| Contract pricing: | See Price Sheets | | | |
| Term worth: | \$3,600,000/year | | | |
| Current | \$0 MBE | \$0 WBE | \$3,600,000 OTHER | \$0 EXEMPT |
| participation: | MBE 0% | WBE 0% | OTHER 100% | EXEMPT 0% |

NOTES:

- I. Best Buy: The following provision applies to mandatory use contracts only. This contract is subject to RCW 43.19.190(2) & RCW 43.19.1905(7): which authorizes state agencies to purchase materials, supplies, services, and equipment of equal quantity and quality to those on state contract from non-contract suppliers. Provided that an agency subsequently notifies the Office of State Procurement (OSP) State Procurement Officer (SPO) that the pricing is less costly for such goods or services than the price from the state contractor.

If the non-contract supplier's pricing is less, the state contractor shall be given the opportunity by the state agency to at least meet the non-contractor's price. If the state contractor cannot meet the price, then the state agency may purchase the item(s) from the non-contract supplier, document the transactions on the appropriate form developed by OSP and forwarded to the SPO administering the state contract. (Reference General Authorities document)

If a lower price can be identified on a repeated basis, the state reserves the right to renegotiate the pricing structure of this agreement. In the event such negotiations fail, the state reserves the right to delete such item(s) from the contract.
- II. State Agencies: Submit Order directly to Contractor for processing. Political Subdivisions: Submit orders directly to Contractor referencing State of Washington contract number. If you are unsure of your status in the State Purchasing Cooperative call (360) 902-7415.
- III. Authorized Purchasers: Only authorized purchasers included in the State of Washington Purchasing Cooperative (WSPC) listing published and updated periodically by OSP may purchase from this contract. It is the contractor's responsibility to verify membership of these organizations prior to processing orders received under this contract. A list of Washington members is available on the Internet <http://www.ga.wa.gov/pca/cooplist.htm>. Contractors shall not process state contract orders from unauthorized users.
- IV. Contract Terms: This Document includes by reference all terms and conditions published in the original IFB, including Standard Terms and Conditions, and Definitions, included in the Competitive Procurement Standards published by OSP (as Amended).

SPECIAL CONDITIONS:

1. Effective Date October 7, 2004. Added Category 7, CMA to product selection, added commodity codes, added Geneva Maintenance Site to Region 1, and added WSDOT Contacts for Regions.
2. Contract award, effective September 1, 2004.
3. All other terms, conditions, pricing, and specifications remain unchanged.

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I. VENDOR CONTACT INFORMATION

| AMERICA WEST ENVIRONMENTAL SUPPLIES, INC. | | | |
|--|---|---------------------------------------|--|
| Primary Contact: | James Hand | Alternate Contact: | Arlen Homer |
| Phone: | (888) 547-5475 (509) 547-2240 | Phone: | (509) 547-2240 |
| Fax: | (509) 547-7861 | Fax: | (509) 547-7861 |
| Email: | Americawest@prodigy.net | Email: | americawest@prodigy.net |
| Sale Representative: | Arlen Homer | Alternate Sale Representative: | Dan Codd |
| Mobile Phone: | 509-430-0626 | Phone: | 360-588-9355 |
| WA Tax Revenue: | 601 1679715 | OSP Supplier No.: | 4558 |
| Federal ID No.: | 91-1679715 | Performance Guarantee: | \$50,000 (Letter of Credit) |
| Order placement address: | America West Environmental Supplies, Inc. PO Box 730 Pasco, WA 99301 (888) 547-5475 (509) 547-27861 | Payment address: | Same as Order placement address. |
| Phone: | (509) 547-27861 | | |
| Fax: | americawest@prodigy.net | | |
| E-mail: | | | |
| PNS Category: | Category 2 (Liquid Inhibited Calcium Chloride) | Payment terms: | Net 30 Days |
| Product: | Geomelt C | Purchasing Card: | VISA |
| Manufacturer: | America West | | |
| Warehouse Contact: | Pat Jensen | Conversion Rate: | 177.94 gallons per ton, 11.24 lbs per gallon |
| Phone: | 509-547-7701 | | |

| CARGILL DEICING TECHNOLOGY | | | |
|-----------------------------------|--|---------------------------|--|
| Primary Contact: | Raymond Greene | Alternate Contact: | Jennifer Bailey |
| Phone: | (800) 600-7258 | | (800) 600-7258 |
| Fax: | (800) 467-3409 | | (800) 467-3409 |
| Email: | ray_green@argill.com | | jennifer_bailey@argill.com |
| Sales Representative: | Marge Bonner | OSP Supplier No.: | 681 |
| Phone: | 800-600-7258 | Federal ID No.: | 41-0177680 |
| Mobile Phone: | 440-463-1233 | WA Tax Revenue: | 409 007895 |
| Web Site: | www.cargill.com | Performance bond: | \$50,000 (Bond) |
| Order placement address: | Cargill Customer Service 24950 Country Club Blvd. Suite 450 North Olmsted, OH 44070 | Payment address: | Cargill FSC Attn: 12522-50403484 PO Box 6034 Fargo, ND 58108-6034 |
| Phone: | (800) 600-7258 | | |
| Fax: | Fax (800) 467-3409 | | |
| PNS Category: | Category 4 (Solid Corrosion Inhibited Sodium Chloride) | Payment terms: | Net 30 Days |
| Product: | ClearLane PNS | Purchasing Card: | VISA |

CARGILL DEICING TECHNOLOGY

| | | | |
|----------------------|---|---------------------------|-----------|
| PNS Category: | Category 8a (Solid non corrosion inhibited sodium chloride, contains moisture less than 0.5%) | | |
| Product: | Cargill Dry Salt | | |
| Manufacturer: | Cargill Deicing Technology | | |
| Warehouse: | Cargill, 9700 North Hurst, Portland, OR 97217 | Warehouse Contact: | Ron Abbot |
| | | Phone: | 503-283- |

CRYOTECH DEICING TECHNOLOGY

| | | | |
|---------------------------------|--|---------------------------|--|
| Primary Contact: | Roxanna J. Huffman | Alternate Contact: | Amy Munday |
| Phone: | 800-346-7237 | Phone: | 800-346-7237 |
| Fax: | 319-372-2662 | Fax: | 319-372-2662 |
| Email: | Bid-receiving@cryotech.com | Email: | Bid-receiving@cryotech.com |
| Sales Representative: | Tony Myhra | OSP Supplier No.: | 9 |
| Phone: | 218-963-4484 | Federal ID No.: | 33-0270225 |
| WA Tax Revenue: | 601-408123 | Performance bond: | \$50,000 (Letter of Credit) |
| Order placement address: | Customer Service | Payment address: | Cryotech Deicing Technology P.O. Box 513120 Los Angeles, CA 90051-1120 |
| Phone: | 800-346-7237 | | |
| Fax: | 319-372-2662 | | |
| E-mail: | Bid-receiving@cryotech.com | | |
| PNS Category: | PNS Category 7, Solid Calcium Magnesium Acetate | Payment terms: | Net 30 days |
| | | Purchasing Card: | VISA |
| Product: | Cryotech CMA ® Deicer | Warehouse: | Bushnell's Warehouse 2720 NW 35 th Ave Portland, WA 97210 |
| Manufacturer: | Cryotech Deicing Technology, Fort Madison, Iowa | Warehouse Contact: | Chris Leader |
| Web Site: | www.cryotech.com | Phone: | 503-227-3519 |

| DUSTBUSTERS, INC. | | | |
|---------------------------------|---|---------------------------|--|
| Primary Contact: | Craig Prete, President | Alternate Contact: | Jeff Dobson |
| Phone: | (307) 789-3878 | Phone: | (253) 761-2487 |
| Fax: | (307) 789-3888 | Fax: | (253) 761-2125 |
| Email: | dustbusters@uintanet.com | Email: | roadwiseinc@comcast.net |
| Sales Representative: | Jeff Dobson | OSP Supplier No.: | 110153 |
| Phone: | (253)761-2487 | Federal ID No.: | 83-0286499 |
| WA Tax Revenue: | 602 3308536 | Performance bond: | \$50,000 (Bond) |
| Order placement address: | Dustbusters, Inc. P.O. Box 15 Evanston, WY 82931-0015 (253) 761-2487 (253) 761-2125 | Payment address: | Same as Order placement address. |
| Phone: | | | |
| Fax: | | | |
| Ordering procedures: | As specified above. | Payment terms: | Net 30 Days |
| PNS Category: | Category 1(Liquid Magnesium Chloride) | Purchasing Card: | None |
| PNS Product: | FreezGard Zero-CI Plus North | Conversion Rate: | 185 gallons per ton (approx.) |
| Manufacturer: | American Salt Co. | | |
| Warehouse: | UPPR Yard, 42 No. Havana, Spokane, WA 99217 | Warehouse: | 200 Rail Road Ave, Ellensburg, WA |
| Warehouse Contact: | Jeff Dodson | Warehouse Contact: | Jeff Dodson |
| Phone: | 877-260-1151 | Phone: | 877-260-1151 |

| ENVIROTECH SERVICES, INC. | | | |
|----------------------------------|---|---------------------------|--|
| Primary Contact: | Matthew Duran | Alternate Contact: | Charles Dickson |
| Phone: | (970) 346-3900 | Phone: | (970) 346-3900 |
| Fax: | (970) 346-3959 | Fax: | (970) 346-3959 |
| Email: | mduran@envirotechservices.com | Email: | cdickson@envirotechservices.com |
| Sales Representative: | Mary Gilmore | OSP Supplier No.: | 110151 |
| Phone: | 509-448-1648 | Federal ID No.: | 84-1102950 |
| WA Tax Revenue: | 602 140124 | Performance bond: | \$50,000 (Bond) |
| Order placement address: | EnviroTech Services, Inc. Attn Customer Service 1140 38 th Ave. Suite 1 Greeley, CO 80634 (800) 577-5346 (970) 346-3959 | Payment address: | EnviroTech Services, Inc. 1140 38 th Ave. Suite 1 Greeley, CO 80634 |
| Phone: | | | |
| Fax: | | | |
| E-mail: | info@envirotechservices.com | | |
| PNS Category: | Category 8b (Solid non Corrosion Inhibited Sodium Chloride, contains moisture less than 5.0%) | Payment terms: | Net 30 Days |
| PNS Product: | IceSlicer RS | Purchasing Card: | VISA |
| Manufacturer: | EnviroTech | | |

| ENVIROTECH SERVICES, INC. | | | |
|---------------------------|---|---------------------------|---------------------------------------|
| | | Conversion Rate: | 184.33 gallons per ton, 10.85 lbs/gal |
| Warehouse: | 4507 W. Seltice Way, Post Falls, ID 83877 | Warehouse: | 2624 Road NW, Moses Lake, WA 98837 |
| Warehouse Contact: | Gary Mobbs | Warehouse Contact: | Jim Clark |
| Phone: | 208-773-4522 | Phone: | 509-839-7008 |

The following contract provisions were excerpted and abridged from the contract IFB and Amendment:

II. SPECIAL TERMS AND CONDITIONS

1. MATERIALS AND WORKMANSHIP

Contractor shall be required to furnish all materials, equipment and/or services necessary to perform contractual requirements. Materials and workmanship in the construction of equipment for this contract shall conform to all codes, regulations and requirements for such equipment, specifications contained herein, and the normal uses for which intended. Materials shall be manufactured in accordance with the best commercial practices and standards for this type of equipment.

2. PERFORMANCE GUARANTEE

Bidder is to indicate in bid submittals the form of performance guarantee that they intend to provide if awarded this contract.

A. Form: Within fifteen (15) calendar days after receipt of notice of award, the Contractor shall furnish the state with a performance guarantee. Said guarantee shall be in the form of a(n):

1. Bond on a form furnished by the state and completed by an approved surety; or
2. Escrow agreement on a form furnished by the state; or
3. Irrevocable letter of credit; or
4. Certified check; or
5. Cashier's check.

Note: Certified or cashier's checks are held by the state for the contract term and any subsequent extensions, and do not yield interest payable to the contractor.

B. Amount: The performance guarantee shall be for an amount of \$50,000.00 for the term of the contract and shall be conditioned upon the faithful performance of the Contractor.

C. Noncompliance: Failure to provide the required guarantee will result in contract cancellation.

D. Discontinuance: Based on Contractor performance during the initial contract term, the state reserves the right to continue/discontinue performance guarantee requirements in subsequent extensions. Delivery, timely correct invoices, problem resolution, etc., will be prime consideration.

3. INSURANCE

Contractor shall provide the insurance as required in Competitive Procurement Standards, Standard Terms and Conditions section, paragraph 44.

4. BID PRICES

Bidder is to submit bid pricing for each PNS product category and delivery location(s) they are bidding. Pricing shall include each Maintenance Areas within a particular WSDOT Region that a Bidder is bidding. A Bidder may bid all WSDOT Regions or individual WSDOT Region(s) that bidder can provide service to as defined herein. Bidder is to refer to the WSDOT map of regions and maintenance areas identified herein when pricing bid. Bid pricing shall apply to any delivery location, identified or not identified herein, within a Maintenance Area. City of Spokane bid prices are specific to City of Spokane and not available to other Purchasers on this contract.

Bid prices shall be expressed in US dollars (\$) and volumes are expressed in tonnage based on truckload quantities as defined herein. For both liquid and solid products bid pricing shall be for Bulk quantities and in addition, solid products pricing shall include Bag quantity pricing.

Product pricing shall be FOB Destination, freight prepaid and included, within State of Washington. All bids shall include unit prices where applicable and be otherwise in the format requested, unless otherwise stipulated herein.

If a Bidder agrees to extend contract pricing to State of Washington WSPC members, then bid price for the corresponding WSDOT Maintenance Area shall apply to the delivery location.

5. PRICING AND ADJUSTMENTS

All pricing shall include the costs of bid preparation, servicing of accounts and all contractual requirements. During contract period, pricing shall remain firm and fixed for at least 365 calendar days after effective date of contract.

All bid pricing is for any designated locations within the State of Washington, as identified herein.

Adjustments in pricing will be at the discretion of the State Procurement Officer and shall:

- a. Be the result of increases incurred after contract commencement date.
- b. Not produce a higher profit margin than that on the original contract.
- c. Clearly identify the items impacted by the increase.
- d. Be filed with State Procurement Officer a minimum of 90 calendar days before the effective date of proposed increase.
- e. Be accompanied by documentation acceptable to the State Procurement Officer sufficient to warrant the increase.
- f. Any change in pricing will remain firm and fixed for at least 365 calendar days after the effective date of a price change.

During the contract period, any price declines at the manufacturer's level or cost reductions to Contractor shall be reflected in a reduction of the contract price retroactive to Contractor's effective date.

During the term of this contract, should the contractor enter into pricing agreements with other Purchasers providing greater benefits or pricing, contractor shall immediately amend the state contract to provide similar pricing to the state if the contract with other Purchasers offers similar usage quantities, and similar conditions impacting pricing.

6. ADDITION OF NEW DELIVERY LOCATIONS

New delivery locations may be added at any time during the term of this contract by Purchaser(s). Purchaser shall allow the Contractor five (5) business days to set-up a new location account and delivery logistics once an order confirmation is received. Current list of delivery locations has been identified herein for bidding purposes.

7. ADDITION OF NEW PRODUCTS

New, improved or updated products available from the Contractor and approved by the Pacific Northwest Snowfighters (PNS) Association may be substituted for a product currently listed in the contract. Pricing for the substitute product will be as agreed to between the Contractor and the State Procurement Officer on behalf of Purchasers. This will allow purchasers an opportunity to take advantage of technological improvements in snow and ice control chemicals made by Contractors during the term of this contract.

8. TESTING EXPERIMENTAL PNS APPROVED PRODUCTS

During the term of this contract, Purchasers reserve the right to purchase other snow and ice control chemical products for testing and evaluation purposes from any vendor whether on contract or not. Such purchases may result in the displacement of some the products covered by this contract (up to a maximum of 10% of total volume) that may have otherwise been purchased through this contract. However, the maximum volume

displaced may be increased based on legislative direction. The Contractors of displaced products will not be compensated for any lost orders, volume or profit.

9. CONTRACTOR SELECTION FOR WORK

Purchaser will select a Contractor for each order based on the following steps:

- a. Purchaser selects a PNS Product Category and the awarded Contractor for their WSDOT Region.
- b. Purchaser provides the selected Contractor the field order with requirements.
- c. If the awarded Contractor for the particular PNS product category and WSDOT Region, notifies the Purchaser they can not meet the delivery date of an order, then the Purchaser may cancel the order and reorder from an Alternative Contractor on contract.
- d. An Alternative Contractor is to be only chosen from this contract. An Alternative Contractor is another awarded Contractor within the same PNS product category, but was awarded a different WSDOT Region. Alternative Contractor must be able to meet the delivery requirements as defined herein. There may not be an Alternative Contractor on contract for each PNS category. There shall be no change in pricing allowed by the Alternative Contractor for an order. Pricing shall be the bid price for the closest WSDOT Maintenance Area to the Purchaser's delivery location.
- e. If there are multiple Alternative Contractors, then the Purchaser shall select the WSDOT Maintenance Area with an Alternative Contractor that is closest to the Purchaser's delivery location.
- f. Alternative Contractor shall immediately confirm acceptance of an order by fax. The acceptance of an order is based on whether the Alternative Contractor has available the necessary product and shipping arrangements for the particular order to meet the delivery requirements. Acceptance of an order obligates the Alternative Contractor to meet all the contract requirements identified herein.
- g. If the Alternative Contractor declines the work based on the above step (f), then the Purchaser shall select the next Alternative Contractor by following the above steps. Purchaser may continue the process until a satisfactory Contractor can be selected. If Purchaser is unable to purchase product for need, then Purchaser shall notify OSP of such and proceed by following the procurement requirements of RCW 43.19.
- h. Purchaser shall maintain a log of the Alternative Contractor Selection process for review by the Office of State Procurement, as requested.

10. CONTRACTOR PERFORMANCE

- A. General Requirements: The state, in conjunction with other purchasers, monitors and maintains records of Contractor performance. Said performance shall be a factor in evaluation and award of this and all future contracts. Purchasers will be provided with product/service performance report forms.
- B. Performance Requirements: The Purchaser has an immediate requirement for the materials specified herein. Bidder is urged to give careful consideration to the delivery specifications and requirements contained herein, to manufacturer's production capabilities and Bidder's ability to meet delivery deadlines. Bidder is urged to give careful consideration to product specifications, corrosion specifications, segregation and/or separation specifications, and product moisture specifications.
- C. Liquidated Damages: Liquidated Damages will be assessed as a result of Contractor's failure to perform as defined herein. Contractor will be assessed in an amount(s) specified in the bid's Specification, Liquidated Damages section for cancelled orders; failure to meet delivery dates and after hours delivery notification; and failure to meet product specifications, concentrations, corrosion, corrosion inhibited, gradation, segregation and/or separation, and moisture specifications. Both the Purchaser and Contractor agree that the Liquidated Damages provisions in this contract are a reasonable forecast of the actual damages that would be suffered by the Purchaser in the event of Contractor's nonperformance and that such Liquidated Damages represent the reasonable compensation due to the Purchaser in the event of a breach by Contractor.

- D. Cost of Remedying Defects: All defects, indirect and consequential costs of correcting, removing or replacing any or all of the defective materials will be charged against the Contractor.

11. REPORTS

Contractor(s) must provide the following report(s) to Office of State Procurement:

a) Sales and Subcontractor Report

A quarterly Sales and Subcontractor Report shall be submitted in the format provided by the Office of State Procurement. You can get the report at <http://www.ga.wa.gov/pca/supplier.htm>. Reports are due thirty (30) days after the end of the calendar quarter.

b) Monthly Contract Activity Reports

Contractor shall provide monthly volume/sales reports for each delivery location supplied through this contract. Monthly Contract Activity Reports are due by the 15th of following month. Contractor shall supply the report in Microsoft Excel spreadsheet format as supplied by the OSP. Monthly reports are to be emailed to the State Procurement Officer (SPO) and WSDOT representative. When there is no sales activity in a month, then the Contractor is not required to submit a Monthly Contract Activity Report. Reports shall provide information in the following specific information:



07904, Monthly
Report.xls

- Product Purchased
 - Delivery Region, Maintenance Area, Specific Location
 - Date ordered
 - Date and Quantity delivered
 - Total dollar amount for the month
 - Year to Date total volume and dollar amounts
- c) Additional reports may be required by the SPO to obtain information needed for bid design, contract negotiation, or any other SPO determined need.

12. CONTRACTOR'S REPRESENTATIVE

- a) Designation: Bidder shall provide contact information and service areas for representative(s) as required in bid.
- b) Responsibility: Representative shall function as the primary point of contact, shall ensure supervision and coordination and shall take corrective action as necessary to meet contractual requirements.
- c) Availability: Representative, or designee, shall be available during normal working hours (Monday through Friday, 8AM to 5PM Pacific Time) and return Purchaser's calls within 24 `hours.

III. MINIMUM SPECIFICATIONS

A. GENERAL REQUIREMENTS

1. ORDERING

- a) Order Placement: Orders will be placed by fax, unless otherwise mutually agreed between Purchaser and Contractor. WSDOT will use a faxed Field Order.
- b) Official Order Date: The official order date shall be the date of the transmittal to the Contractor.
- c) Late Shipment: Contractor shall immediately notify Purchaser by fax or email if unable to meet the delivery requirements as defined herein. Occasionally, the Purchaser may schedule a delivery date later than the delivery requirements identified herein; in that case the shipment is considered late if not delivered on the scheduled delivery date.
- d) Cancel Order: If Contractor can not deliver within the delivery requirements as identified herein, then the Purchaser may cancel the order with no cost to the Purchaser.
- e) Delivery Contact Information: Purchaser to provide to the Contractor all necessary delivery information when ordering: receiving person contact information (business phone, cell phone, fax number, and emergency/after-hours phone numbers, if necessary), and driving directions, delivery address and instructions, receiving times/days, delivery truck type (if other than end-dump), etc.
- f) Delivery Days and Times: For WSDOT facilities, regular business days/hours shall be Monday through Friday, 8:00 AM to 4:00 PM (Pacific Time), excluding Washington State government holidays as defined in RCW 1.16.050 (<http://www.leg.wa.gov/wsladm/rcwsup.htm>) or unless otherwise requested and mutually agreed. During the winter season, some WSDOT facilities may operate a 24hour/7day work schedule or other extended business hours schedule, Contractor is required to coordinate extended delivery days/hours with Purchaser prior to making deliveries.
- g) Winter Season Delivery Requirements: From November 1st through March 1st delivery shall be made within two (2) calendar days from the official order date (e.g. ordered on Monday, deliver on or before Wednesday), unless later delivery date is scheduled by the Purchaser (e.g. ordered on Thursday, delivery on following Tuesday). Purchasers will indicate on field order whether they can accept orders on weekends. From March 2nd through October 31st delivery shall be made within twenty (20) calendar days of official order date.
- h) Large Quantity Orders Delivery Requirements: From November 1st through March 1st for orders larger than 60 tons or two truckloads per location, 60 tons of that order must be delivered within the two (2) calendar days from the official ordering date. If a Contractor can not deliver the entire order within two (2) calendar days, then remaining truckload shipments (minimum of 60 tons per day) of the balance must be delivered daily until the order is complete, unless otherwise agreed to by the Purchaser.
- i) Delivery Notification: Contractor shall provide the Purchaser notification of the delivery with adequate time for the Purchaser to prepare for the delivery. A 24-hour notification is customary and may be required. Notification shall be made during Purchaser's business hours.
- j) Drop Shipments: Bidder shall identify a drop shipment fee, if any, in the bid submittals. Contractor may charge a "drop shipment fee" for each additional stop when there are multiple delivery locations for one truckload. Purchasers may specify multiple delivery locations within the same delivery WSDOT Region.

2. SHIPPING

- a) Typical truckload quantities are:

| Product Type | Description | Approx. Weight | Minimum per Truck Load | Typical Quantity per Truck Load |
|---------------------|-------------|------------------|------------------------|---------------------------------|
| Solid (Super Sacks) | Bag | 2,205 lbs. / Bag | 20 Bags | 44,000 Pounds |
| Solid | Bulk | 2,000 lbs. / Ton | 30 Tons | 30 Tons |
| Liquid | Bulk | variable/ton | 5,000 Gallons | 6500 Gallons |

Packaging: Contractor shall package products as follows:

- b) For liquid products, packaging shall be for bulk products shipped in tanker trucks in full truckload delivery quantities, unless otherwise noted on the order.
- c) For solid products, packaging shall be bulk loads in full truckloads delivery quantities, and packaging for bag units (Super Sacks) shall be shipped on a pallet. Bulk bags are to be constructed of poly woven material with a plastic liner, with four belts or loops at the top, and shipped on a 4-way non-returnable pallet. All pallets or containers shall have the field order number, product name, and quantity clearly indicated on the outside in an easily read legend.
- d) Weather Protection: All products shall be protected from the weather elements and secured in a manner to prevent it from dislodging during transit.

3. UNLOADING

- a) Site Preparation: To avoid unnecessary unloading delays Purchaser shall provide: ready access to delivery site, adequate room for maneuvering and unloading, easy access to liquid tank connection, and a clearly identified unloading spot. Average length of trailer truck is 48 feet and end dump trucks may rise 30 feet above the ground level. If an unloading site is not adequate for deliveries then the Contractor will notify the Purchaser.
- b) Unloading: Unloading of products is the responsibility of the Contractor, there shall be no additional cost to the Purchaser for unloading related activities.
- c) Solid Products: For bulk solid products, an end-dump truck is required for delivery at all WSDOT locations, unless otherwise stated on the field order. If Purchaser requires another type of delivery truck, then Purchaser needs to specify such on the order. There shall be no additional costs to the Purchaser for different types of delivery trucks. For delivery of bags (Super Sacks), Contractor shall coordinate with Purchaser for unloading details before delivery. Purchaser shall be responsible to unload bags by a forklift.
- d) Liquid Products: Purchaser's liquid storage tanks will be fitted with a three-inch male pipe cam lock fitting to allow for unloading of product. Contractor will be responsible for all necessary equipment to transfer liquid chemical products to Purchaser's storage tanks. Contractor shall visually inspect the discharge valve prior to unloading for the presence of any foreign material.
- e) An anti-foaming agent will be available from Contractor for use as needed, at no additional charge to the Purchaser, to control foaming during loading, unloading, and agitation of liquid chemical products.
- f) Purchaser to note any product problems at the point of delivery by documenting it on the Bill of Lading and relaying the information to their Purchasing representative for action. Purchaser may reject any shipment if problems are noted and immediately halt the unloading process. Purchaser to immediately advise the Regional Purchasing Officer of any ordering, delivery, storage, or product quality issues.

4. BILL OF LADING

Purchaser to work with the Contractor to confirm a Purchaser representative is available to sign delivery tickets or otherwise accept and authorize deliveries. Contractor is responsible to confirm shipping/invoicing information when an order is placed, if necessary.

The Bill of Lading shall be accurate, complete, and legible, and must contain the following information:

- a) Date of Delivery, initialed by driver
- b) Field (Purchase) Order number
- c) Product Name
- d) Contractor name
- e) Destination of delivery
- f) Total number of units being delivered: net weight (tons) and gallons (liquid) (certified scale ticket) or a certified flow meter ticket.
- g) Lot number of product being delivered.
- h) Transport information--Name of transporting company, tank, trailer or rail car number, point and date of origin.

5. INVOICING

Contractor to include the following information before the Purchaser will process any invoices and shall include all of the same information as required for the Bill of Lading:

- a) Contract unit of measure.
- b) Contract unit price for product delivered.
- c) Total price for units delivered.
- d) A copy of the original bill of lading or number of bill of lading.

6. SAMPLING AND TESTING

All orders are subject to field inspection, sampling, and testing on an as delivered basis. Field inspections, sampling and testing is the prerogative of the Purchaser. The Contractor shall not off load any material without affording the Purchaser an opportunity to conduct the field inspection, sampling or the testing. Off loading of material without affording the Purchaser an opportunity to conduct said work shall deem the delivered material non compliant and is subject to total rejection.

- a) Each type of product may be tested for conformance to PNS specifications during the year. When a sample is taken for testing it will be taken from the delivered shipment. The sample will be used for testing and/or fingerprinting at the Purchaser's expense to insure product quality.
- b) Purchaser to clearly label samples for identification and send samples directly to the appropriate agency testing laboratory (WSDOT will use their Headquarters' Material Testing Laboratory, directly to Chief Chemist). When shipping a sample for testing, include the following information: state contract number, field (purchase) order number, manufacturer or Contractor name, name of product, lot number of product, shipping date, bill of lading tracking number, date received, name of delivery point, quantity of material delivered, and name and phone number of person who received the load and took the samples.
- c) For liquid products, a one-gallon sample will be taken from the transfer hose in three equal parts. Each part will be compositely mixed together with the other parts to make up the one-gallon sample that will be submitted to the laboratory for testing. The sample will be collected during unloading of the delivered product by taking a sample from the first third, second third and last third part of the load. If the trailer or

pup has compartments, then three equal samples shall be taken from only one of the compartments to complete the sample.

- d) For solid products, samples of the materials should be obtained from a complete cross section of the load. The sample should be placed into a clean and dry wide mouth 1-gallon container with a screw top lid and sealed with tape as soon as the sample has been taken to avoid exposing the sample unduly to atmospheric moisture. Sample portions shall be taken from the top, center, and bottom of the load in proportion to the cross section area at that point and well within the stack each time. It is best practice to cut completely through the stack if practicable. Fine material sifts to the bottom. Care should be taken to obtain a complete and representative sample
- e) Test results from the Purchaser's laboratory will be final, unless the Contractor appeals the test results, in that case a mutually agreed upon independent laboratory will conduct a final test and this retest results will be final. If the retest results are in agreement to the Purchaser's original laboratory test, that is demonstrating the product was out of specifications, then the Contractor agrees to pay the Purchaser all related costs for the retest.

7. CERTIFICATION OF PRODUCT DELIVERED

Bidder is to identify in the bid response how the Bidder will meet the following conditions if awarded:

- a) Contractor shall provide with each shipment a certification that all products delivered meet PNS Qualified Product List and specifications as bid.
- b) Contractor will provide a tracking Lot (Batch or Control) Number for each shipment. The Lot Number is a specific number assigned to that particular production run of the product being delivered. A Lot Number can be the source of multiple deliveries. The Lot Number shall be clearly legible and identified on the delivery documents. The Lot Number must enable the Purchaser and Contractor to track a delivered product back to its manufacture point, date of manufacture and specific batch for quality assurance and verification. Failure to have a Lot Number with each shipment is grounds for rejection of the load at time of delivery.

For liquid products the Contractor shall provide a certified weight ticket and/or a legibly printed ticket from a flow meter that has been tested and certified by approved WA State of Weights and Measures (phone: 360-902-1857). The certification of the meter shall not be older than one year. Weight tickets shall be stamped with a Weigh Master seal. Contractor shall have flow meters recalibrated once a year by licensed service agent approved by Weights and Measures. Purchaser may request that the meter be retested and certified again during the delivery year if the data from the meter is in question. This retesting and certification shall be done at no additional charge to the Purchaser.

8. LIQUIDATED DAMAGES



Liquidated Damage
Report Sample Form.:

Purchaser will deduct liquidated damages from the payment of the invoice for the actual truckload of product not delivered according to the terms of this agreement. Liquidated damages may be cumulative.

- a) **Cancelled Order:** If Contractor is unable or fails to deliver the product in compliance with this agreement's delivery requirement specifications, then the Purchaser may choose to cancel the order and liquidated damages will be assessed in the amount of \$150.00 per cancelled order, which represent the reasonable forecast of Purchaser's actual administrative damages for the cost of ordering, canceling and reordering product. Purchaser will fax to the Contractor a notice of cancellation, and the order will be cancelled as of the date of the fax transmission. Contractor shall also pay the Purchaser the difference in

cost between Contractor's bid price and the price charged to Purchaser by another Contractor for a similar product.

- b) Late Delivery: If Contractor fails to deliver the product in compliance with this agreement's delivery requirement specifications, then liquidated damages will be assessed in the amount of \$500.00 per day for each late delivery day per delivery location, not to exceed 50% of the order value, which represents the reasonable forecast of Purchaser's actual damages for its having to use alternative measures and products, such as sand which costs four times as much to use for winter operations.
- c) After Hours Delivery Notification: If Contractor attempts delivery outside of the Purchaser's regular business hours without obtaining Purchaser's 24 hour prior authorization for such delivery, then liquidated damages will be assessed in the amount of \$100.00 with an additional amount of \$100.00 assessment when delivery is more than one hour beyond regular business hours, total is not to exceed \$200.00 per shipment, which represents the reasonable forecast of Purchaser's additional labor and administrative costs for such deliveries.
- d) Product Deviations from Chemical Specifications: If Contractor delivers product not in compliance with this agreement's specifications identified herein, then liquidated damages will be assessed as defined below. Liquidated damages will be based on the Pacific Northwest Snowfighter's testing methods as identified herein. The below liquidated damage amounts represent the reasonable forecast of Purchaser's actual damages for use of product that does not meet the chemical specifications.
 - 1) Concentration Specifications for Categories I, II, and III (liquids), Magnesium Chloride, Calcium Chloride, and Calcium Magnesium Acetate

Field samples taken of the delivered liquid chemical products will be tested for the appropriate Magnesium Chloride, Calcium Chloride, or Calcium Magnesium Acetate concentration in percent according to

Test Method A. The test result will be compared to the BQC of the chemical product. Any element or compound that is not specific to the product being bid will not count towards the BQC. For example, if a sample is submitted under Category I, Magnesium Chloride, credit will be given for Magnesium Chloride content only; no credit shall be given for trace materials such as Calcium Chloride, Sodium Chloride, etc. Using diluted product results in Purchaser incurring increased operational expenses and additional product costs for having to use more product.

| Liquidated damages for Noncompliance of Product to BQC concentration ranges and Chemical products below the minimum concentration | |
|--|--|
| The below liquidated damage assessments is based on a load value of \$3000.00, this amount is based on an average historical product pricing for a typical truckload quantity. | |
| Concentration Ranges | Liquidated Damages |
| BQC less 1% but in no case below the minimum concentration limit | No liquidated damages |
| BQC less 1.1% or greater but in no case below the minimum concentration limit | Anticipated to use 35% more product per truckload, therefore liquidated damages will be assessed at \$1000.00 per load per delivery location |
| Chemical Products, 24.0% to 24.9%, below the minimum concentration | Anticipated to use 50% more product per truckload, therefore liquidated damages will be assessed at \$1500.00 per load per delivery location. |
| Chemical Products, less than 24.0%, below the minimum concentration | Anticipated to use 100% more product per truckload, therefore liquidated damages will be assessed at 100% of value per load per delivery location. |

- 2) Corrosion, Moisture, Segregation and Separation Specifications Categories IV, V, VII, VIII(A) and VIII(B) (solids), for chemicals containing sodium chloride

- Noncompliance of Product: If Contractor delivers product that does not meet Corrosion, Moisture (e.g. excessive moisture content), Gradation limits (e.g. too fine or too large), Segregation or Separation specifications as required in this agreement, then liquidated damages will be assessed in the amount of \$450.00 per load per delivery location. The liquidated damage assessment is based on a load value of \$4500.00, this amount is based on an average historical product pricing for a typical truckload quantity. Liquidated damages cover the additional operation and product costs (e.g. product is too fine and will not stay in truck, falls out through gate opening, causing product loss, or product grade too large and extra time is necessary to spread correctly).

Permissible Variations of 5% will be allowed for each sieve size

| Sieve Size | Wt % Passing | Liquidated Damages |
|------------|--------------|--------------------|
| ¾" | 100 | None |
| #4 | 15-100 | None |
| #8 | 5-65 | None |
| #30 | 0-20 | None |

3) PNS Corrosion Inhibited Categories

If Contractor delivers product that does not meet the corrosion specifications, including corrosion inhibitors that fail to bond to the primary material sufficiently, as required in this agreement, then liquidated damages will be assessed as defined below. Liquidated damages cover the damages to, for example, highway equipment and bridge structures whose "useful product life-cycle" are reduced by using a corrosive product.

- **Liquid Products**
The below liquidated damage assessment is based on a load value of \$3000.00, this amount is based on an average historical product pricing for a typical truckload quantity. Liquidated damages will be assessed in the amount of \$750.00 per load per delivery location.
- **Solid Products**
The below liquidated damage assessment is based on a load value of \$4500.00, this amount is based on an average historical product pricing for a typical truckload quantity. Liquidated damages will be assessed in the amount of \$1000.00 per load per delivery location.
- **Reject and Replace Shipment**
Purchaser may elect to reject such shipment at its sole option and without incurring any additional costs. Contractor shall remove any rejected product and any material that was contaminated from the rejected product from Purchaser's site. Purchaser's, at its sole discretion, will determine the amount of its material, if any, that has been contaminated by Contractor's shipment. Contractor shall replace the rejected product with product that meets this agreement's specifications. All associated costs for removing and replacing rejected product and contaminated materials shall be at Contractor's sole cost, including the costs of handling and transportation charges.

B. SPECIAL TERMS AND CONDITIONS SPECIFIC TO THE CITY OF SPOKANE

The following applies only to the City of Spokane purchases and may modify some items in the General Requirements section.

1. **BID SUBMITTAL:** Bidder to submit on Price Sheet for City of Spokane, Bidder's price for product and Bidder's plans for off-site storage of a minimum of 64,000 gallons of liquid deicer and how it intends to supply the product to the City as described herein.
2. **INVENTORY:** It is the City's intent to have 100,000 gallons in ready inventory at the beginning of a major winter snow and ice storm with a potential re-supply of 36,000-gallon every 24 hours during the storm. The City has on-site storage of 36,000 gallons located at the Northside Satellite, 4101 E Queen, Spokane, WA. Contractor will supply product to the Northside Satellite on a keep-full basis. The other 64,000 gallons are to be stored in rail cars on a siding or other Purchaser approved storage site/facility.
3. **CONTRACTOR'S STORAGE:** Contractor's storage site/facility must be located within the city limits or the western half of the Havana Rail yard just north of Sprague and east of Havana. Storage site shall be made readily available to City crews and be provided with continuous power to the City's pumping facility to operate its lighting and heating system. The cost for said power and readiness shall be included in the unit cost of the product provided.
4. **INVENTORY AT END OF SEASON:** At the end of the winter season, or approximately March 31st, the Contractor will fill the City's storage tanks. Any material left in Contractor supplied storage will be returned to the Contractor and appropriate credit issued to the City for the unused material.
5. **DELIVERY DAYS AND TIMES:** Normal working hours shall be Sunday through Saturday (excluding City holidays) between the hours of 6:00 A.M. and 2:00 P.M. or 5:00 P.M and 1:00 A.M, unless otherwise requested and approved by the City.
6. **BUSINESS LICENSE REQUIREMENT.** The Contractor shall be responsible for contacting the City's Taxes & Licenses Department at (509) 625-6070 to obtain a business license or receive a determination of exemption in accordance to Section 8.01.070 of the Spokane Municipal Code.

C. GENERAL PRODUCT SPECIFICATIONS

The specifications are based on the 2004 Pacific Northwest Snowfighters (PNS), snow and ice control chemical products, specifications and test protocols. The PNS Association of British Columbia, Idaho, Montana, Oregon and Washington strives to serve the traveling public by evaluating and establishing specifications for products used in winter maintenance that emphasize safety, environmental preservation, infrastructure protection, cost-effectiveness and performance.

The PNS Association has developed the Qualified Products List (QPL). The QPL is composed of products that have been tested and found to be in conformance with PNS established specifications. Any material changes to a product that is listed on the QPL either by the manufacturer or the Bidder, which in any way makes the product different from the original qualified material, shall be grounds for disqualifying the product.

- 1) Qualified Products List: To bid a product in response to this IFB, that product must be listed on the current QPL developed by the PNS. Only products approved by PNS prior to the date and time of bid opening will be considered for evaluation and contract award. A listing of approved products from the QPL is available on the PNS website at <http://www.wsdot.wa.gov/partners/pns/default.htm>.
- 2) Below are the quality standards accepted for this contract

| Minimum Quality Standards for PNS Categories from Qualified Product List | | |
|--|--------------------------------|---------------------------------------|
| PNS Category | Corrosion Rate % Effectiveness | % Concentration |
| 1 | 30% Maximum | MgCl ₂ Content 29% Minimum |
| 2 | 30% Maximum | CaCl ₂ Content 30% Minimum |
| 3 | 30% Maximum | CMA Content 25% Minimum |
| 4 | 30% Maximum | N/A |
| 5 | 30% Maximum | N/A |
| 7 | 30% Maximum | N/A |
| 8a | N/A | N/A |
| 8b | N/A | N/A |

- 3) Testing: All products shall be tested to the specified limits contained within PNS specifications and as per the products' specific category classifications. A product that passes the required specification testing limits and has passed the PNS review shall be placed onto the PNS Qualified Products List. Purchased products that appear on the Qualified Products List may be tested for compliance to the material that was originally submitted for qualification.
- 4) Corrosion Inhibitor: No bid will be accepted on any corrosion inhibited product that has not successfully completed the National Association of Corrosion Engineers (NACE) Standard TM0169-95, as modified by the PNS, and found to have a Corrosion Value of at least 70% less than that of Sodium Chloride (salt).

- 5) Contaminated Materials: The Contractor of any product delivered and/or applied that is found to be contaminated and is cause for environmental concerns shall be responsible for all clean up expenses. This includes but is not limited to clean up measures as needed for the following: storage facility, yard, equipment, and roadside.
- 6) Equipment Damages. Contractor shall be liable, as determined by the purchaser for causing any unanticipated extraordinary damages to equipment used in the storage or distribution of the chemical products.
- 7) MSDS: A current and clearly legible Material Safety Data Sheet (MSDS) shall accompany each shipment.
- 8) Concentration Limits: A product that contains any constituent in excess of the following established total concentration limits as tested in accordance with the listed test methodology as identified herein shall not be acceptable. Results are stated as parts per million (ppm).

| | | |
|----|------------|----------------------------------|
| 1 | Phosphorus | 2500.00 ppm (as total phosphate) |
| 2 | Cyanide | 0.20 ppm |
| 3 | Arsenic | 5.0 ppm |
| 4 | Copper | 1.0 ppm |
| 5 | Lead | 1.0 ppm |
| 6 | Mercury | 0.05 ppm |
| 7 | Chromium | 1.0 ppm |
| 8 | Cadmium | 0.20 ppm |
| 9 | Barium | 100.0 ppm |
| 10 | Selenium | 5.0 ppm |
| 11 | Zinc | 10.00 ppm |

Note: Liquid products shall be tested as received. Solid Salts are to be diluted to a 25% (Weight/Volume, W/V) concentration and then tested as if the material was a liquid sample. Report only the values determined from the 25% solution for all of the parameters as compared to the specification limits. Do not back calculate the concentration of the parameters to the dry weight of the material.

- 9) Bidder shall supply the following analysis for information purposes for liquid products or solid products that will be converted into a liquid product for application purposes, when requested by Purchaser. Testing of the following parameters will be done by the listed testing methodology as identified herein.
 - Ammonia – Nitrogen
 - Total Kjeldahl Nitrogen
 - Nitrate and Nitrite – Nitrogen
 - Biological Oxygen Demand
 - Chemical Oxygen Demand
 - Frictional Analysis
 - Toxicity Testing
 - a. Rainbow Trout or Fathead Minnow Toxicity Test
 - b. Ceriodaphnia Dubia Reproductive and Survival Bioassay
 - c. Selenastrum Capricornutum Algal Growth

D. PRODUCT TESTING METHODS

(1) TEST METHOD A

TEST METHOD “A” – Concentration Percentage of Active Ingredient In Liquid Chemical Products

Concentration Percentage of Active Ingredient In Liquid Chemical Product

I. Test Method

Atomic Absorption Spectrophotometry as described in “Standard Methods for the Examination of Water and Waste Water”, APHA-AWWA-WPCF

II. Apparatus

Atomic Absorption Spectrophotometer
250, 500 ml Graduated Cylinders
2000 ml Beaker
100, 500, 1000 ml Volumetric Flasks
5, 10, 15, 20, 25, 30 ml Volumetric Pipets (Class A)
100 microliter Eppendorf Pipet

III. Reagents

ASTM D 1193 Type II Distilled Water
1000 ppm Calcium Stock Solution
1000 ppm Magnesium Stock Solution
Concentrated Hydrochloric Acid (HCl)
Concentrated Nitric Acid (HNO₃)
Lanthanum Oxide (La₂O₃)

IV. Preparation of Lanthanum Chloride; Calcium Chloride and Magnesium Chloride Calibration Standards and Blanks; Quality Control Solutions; and Calcium Chloride and Magnesium Chloride Deicer Solutions.

1. Preparation of 10% Lanthanum Chloride Stock Solution

In a 2000 ml beaker add 200 ml of distilled water to 117.28 g of Reagent Grade Lanthanum Oxide. While stirring, **very slowly** add 500 ml of concentrated HCl (25 ml at a time). **CAUTION!** This reaction is extremely violent. Care should be taken so the solution does not overflow the beaker. When the solution has cooled to room temperature, transfer to a 1000 ml volumetric flask and dilute to volume with distilled water. (Lanthanum Chloride is the Ionization Suppressant used in determining Calcium and Magnesium concentrations by Atomic Absorption).

2. Calcium and Magnesium Chloride Calibration Standards

A. Calcium

1. 100 ppm Calcium Stock Solution for Dilutions

Pipet 10 ml of the 1000 ppm Calcium reagent solution into a 100 ml volumetric flask. Using an Eppendorf pipet add 0.1 ml concentrated HNO₃ acid and dilute to volume with distilled water.

2. Calcium Standards for Calibration (20, 25, 30 ppm)

Pipet aliquot's of 20, 25, and 30 ml of the above 100 ppm Calcium stock solution into three different 100 ml volumetric flasks. Add 20 ml of the 10% Lanthanum Chloride solution to each flask before diluting to volume with distilled water. The standard solutions should be prepared daily.

B. Magnesium

A. 100 ppm Magnesium Stock Solution for Dilutions

Pipet 10 ml of the 1000 ppm Magnesium reagent solution into a 100 ml volumetric flask. Using an Eppendorf pipet add 0.1 ml concentrated HNO_3 acid and dilute to volume with distilled water.

B. Magnesium Standards for Calibration (10, 15, 20 ppm)

Pipet aliquot's of 10, 15, and 20 ml of the above 100 ppm Magnesium solution into three separate 100 ml volumetric flasks. Add 20 ml of the 10% Lanthanum Chloride solution to each flask before diluting to volume with distilled water. The standard solutions should be prepared daily.

3. Blank Solution

- A. Blank Solution for Calibration Pipette 20 ml of 10% Lanthanum Chloride solution into a 100 ml volumetric flask and dilute to volume with distilled water. The blank solution should be prepared daily.

4. Quality Control Solutions

- A. Calcium Quality Control Check Weigh 0.6762 g pre-dried CaCO_3 and place into a 1000ml volumetric flask. Add 1 ml of concentrated HNO_3 and dilute to volume with distilled water. From this solution, pipette 10 ml into a 100 ml volumetric flask, add 20 ml of the 10% Lanthanum Chloride solution and bring to volume with distilled water. This will be the working Quality Control Standard and have a value of 27.10 ppm Calcium. (Note: The 27.10 ppm Calcium concentration is equal to a 30% brine concentration of Calcium Chloride based on a 2.5 gram sample size.)
- B. Magnesium Chloride Quality Control Check Weigh 1.5056g (nondried) $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ and place into 1000 ml volumetric flask. Add 1 ml of concentrated HNO_3 and dilute to volume with distilled water. From this solution, pipette 10 ml into a 100 ml volumetric flask, add 20 ml of the 10% Lanthanum Chloride solution and bring to volume with distilled water. This will be the working Quality Control Standard and have a value of 18.00 ppm Magnesium. Note: (Note: The 18.00 ppm Magnesium concentration is equal to a 28.2% brine concentration of Magnesium Chloride based on a 2.5 gram sample size.)

V. Preparation of Liquid Chemical Products Sample Solution

A. Solution A

1. Weigh approximately 2.500 grams of the liquid chemical product into a tared 500 ml volumetric flask. Record the sample weight to the nearest mg for final calculations. Add 1 ml HNO_3 . Rinse the neck of the volumetric flask with a slight amount of distilled water and allow the sample to digest for one hour. Dilute to volume with distilled water. Label as solution A.

B. Solution B (Working Chemical Product Solution)

1. Pipette 5 ml of Solution A into a 100 ml volumetric flask. Add 20 ml of 10% Lanthanum Chloride solution and dilute to volume with distilled water. Label as solution B (Dilution factor of 20).
2. Repeat Step 2 so that each chemical product sample has a duplicate working solution.

VI. Atomic Absorption Spectrophotometer Operation

A. Calcium

1. Set up the spectrophotometer (absorption) with the Calcium lamp using a wavelength setting of 422.4 nm, and a slit width of 0.2 nm. An Air-Acetylene flame should be used with the 10 cm burner head set at a 45° angle. The flame, burner, and instrument are to be optimized for best detection.
2. Calibrate the instrument using the blank, 20 ppm, 25 ppm, and 30 ppm standards for Calcium.
3. Run the Calcium Quality Control solution. This result must be within plus or minus 0.20 ppm of the known 27.10 ppm concentration before proceeding.
4. Once the Quality Control solution is within allowable limits, run the chemical product samples and their duplicates and record the results.
5. Run the Calcium Quality Control solution again to assure accurate results.
6. Following the analysis calculate the percent concentration of the sample and the duplicate sample for each chemical product using the following formulas. These test results must be repeatable within plus or minus 0.3% concentration of each other to be acceptable for reporting. If the results are outside this allowable limit, perform the dilutions over and retest until the samples are repeatable within the 0.3% limit.

B. Magnesium

1. Set up the spectrophotometer (absorption) with the Magnesium lamp using a wavelength setting of 285.4 nm, and a slit width of 0.2 nm. An Air Acetylene flame should be used with the 10 cm burner head set at a 45°. The flame, burner, and instrument are to be optimized for best detection.
2. Calibrate the instrument using the blank, 10 ppm, 15 ppm, and 20 ppm standards for Magnesium.
3. Run the Magnesium Quality Control solution. This result must be within plus or minus 0.15 ppm of the known 18.00 ppm concentration before proceeding.
4. Once the Quality Control solution is within allowable limits, run the chemical product samples and their duplicates and record the results.
5. Run the Magnesium Quality Control solution again to assure accurate results.
6. Following the analysis calculate the percent concentration of the sample and the duplicate sample for each chemical product using the following formulas. These test results must be repeatable within plus or minus 0.3% concentration of each other to be acceptable for reporting. If the results are outside this allowable limit, perform the dilutions over and retest until the samples are repeatable within the 0.3% limit.

VII. Calculations

Calculations for CaCl₂ base on a sample weighing 2.550 grams :

$$\text{Factor} = \frac{(110.99 \text{ CaCl}_2)(1\%)(\text{Dilution factor})(\text{Initial vol.})}{(40.08 \text{ Ca}) (10,000 \text{ ppm})} = 2.7692$$

$$\% \text{ CaCl}_2 = \frac{(\text{X ppm from AA})(\text{Factor})}{\text{grams of sample}}$$

Example: $\frac{(28.20 \text{ PPM})(2.7692)}{2.5500 \text{ g chemical product}} = 30.6\% \text{ CaCl}_2$

Calculations for MgCl₂ base on a sample weighing 2.550 grams:

$$\text{Factor} = \frac{(95.211 \text{ MgCl}_2)(1\%)(\text{Dilution factor})(\text{Initial vol.})}{(24.305 \text{ Mg}) (10,000 \text{ ppm})} = 3.9173$$

$$\% \text{ MgCl}_2 = \frac{(\text{X ppm from AA})(\text{Factor})}{\text{grams of sample}}$$

Example: $\frac{(18.87 \text{ ppm})(3.9173)}{2.5500 \text{ g chemical product}} = 29.0\% \text{ MgCl}_2$

(2) TEST METHOD B

TEST METHOD “B” – Corrosion Rate As Conducted From The NACE Standard TM0169-95 (1995 Revision) As Modified By The Pacific Northwest States.

Products that are submitted to meet the Corrosion Rate Test and to have a Percent Effectiveness determined shall be tested according to the National Association of Corrosion Engineers (NACE) Standard TM0169-95 as modified by the PNS. **The PNS has modified this procedure so that the test procedure uses 30 ml of a 3% chemical product solution as received per square inch of coupon surface area for the corrosion test.** Corrosion inhibited chemical product must prove to have a Percent Effectiveness value of at least 70% less than Sodium Chloride (salt) to be acceptable.

I. PREPARATION OF THE COUPONS

The coupons used are ½” (approximately 1.38 in. x 0.56 in. x 0.11 in.) flat steel washers displaying a density of approximately 7.85 grams per cubic centimeter. (Note: No galvanized coupons are allowed to be used even after removing the zinc with acid. Hot dipped galvanization creates a Fe-Zn metallurgical surface bond that changes the characteristics of the steel. Coupons must meet ASTM F 436, Type 1, with a Rockwell Hardness of C 38-45. Each coupon used in the test procedure is subjected to the following process to assure accuracy in test results.

- Wipe with suitable solvent to remove grease and oil.
- Examine each coupon for metallurgical abnormalities and reject those that are suspect to flaws.
- All coupons are tested for Rockwell Hardness of C 38-45; coupons having hardness outside of this range are rejected.
- Acceptable coupons are stamped for identification.
- Coupons are acid etched with 1 + 1 HCl for approximately 2 -3 minutes.
- The coupons are then quickly rinsed with tap water, distilled water, wiped dried and placed in chloroform.
- When the coupons are removed from the chloroform for use, they are place on a paper-lined tray (not touching each other) and allowed to air dry in a ventilated hood for a minimum of 15 minutes.
- Coupons are measured as specified. (Note: If latex gloves are not worn during measuring, the coupons should be rinsed again and dried as prescribe above prior to weighing. This will remove any oils that may be transferred to the coupons.)
- Each coupon shall be weighed to a constant weight. The constant weight shall be two consecutive weighings of each coupon within a minimum of 0.5 milligrams of each other. Removal of incidental flash rusting prior to weighing is not necessary.

Three coupons are used in each chemical product solution and for the distilled water and Sodium Chloride control standards.

II. MEASURING OF THE COUPONS

The outside diameter, inside diameter, and the thickness of each coupon is measured twice at 90 degrees from each initial reading and the averages calculated for each measurement. The averages are then used to calculate the surface area of each coupon with the following formula:

$$A = (3.1416/2)(D^2 - d^2) + 3.1416(t)(D) + 3.1416(t)(d)$$

Where D = average outside diameter
 d = average inside diameter
 t = average thickness

Example:

$$A = (1.5708)(1.9044 - 0.3136) + 0.4768949 + 0.1935226$$

$$A = (1.5708)(1.5908) + 0.4768949 + 0.1935226$$

$$A = 2.4988286 + 0.4768949 + 0.1935226$$

A = 3.1692461 square inches (Total surface area of the coupon.)

A = 3.17 square inches

III. PREPARATION OF THE SOLUTIONS

ASTM D 1193 Type II distilled water is used to prepare each solution, blank, and control standard. The Sodium Chloride (NaCl) used to prepare the salt standard shall be of "ANALYZED REAGENT GRADE" quality.

A 3% solution of NaCl is prepared by weight, using the reagent grade salt and distilled water (W/V).

A 3% solution of each chemical product to be tested is prepared using distilled water to dissolve and or dilute the chemical product. For liquid chemical products, three parts liquid chemical product (as received) is mixed with 97 parts distilled water to produce the test solution (V/V). If the chemical product is a dry product, then the 3% solution is made by weight (W/V).

All solutions including the distilled water blank are covered and allowed to sit a minimum of 12 hours to stabilize and reach equilibrium, ensure solubility and to account for any reactivity that may occur.

IV. THE CORROSION TEST

Approximately 300 milliliters (actual volume is determined by the surface area of test coupons) of each solution as mixed with distilled water and is put into a 500 milliliter Erlenmeyer flask. Each flask is equipped with a rubber stopper that has been drilled to allow a line to run through it. The hole in the rubber stopper is 3-4 millimeters in diameter. One end of the line is attached to a rotating bar and the other end of the line is attached to a plastic frame made to hold coupons inside the flask where three coupons are attached to each plastic frame. The rotating bar is controlled by an electric timer that lowers the bar for 10 minutes then raises the bar for 50 minutes out of the solution but still keeps the coupons inside of the flask for the entire duration of the test. This allows the coupons to be exposed to the test solution 10 minutes of each hour. The corrosion test is then run for 72 hours. No agitation of the solution is made during the corrosion test.

Corrosion tests are conducted at 21-23 degrees Centigrade. The room temperature is to be recorded daily during the operation of the test. The room temperature shall be taken with a calibrated thermometer located next to the corrosion-testing instrument. The temperature readings will be used to help determine varying corrosion rates, at this time temperature readings will not be used to correct data.

V. CLEANING OF THE COUPONS

The coupons are removed from the solution after 72 hours. The coupons are pre-washed under running tap water to remove any loosely adherent corrosion products. They are then placed into glass beakers containing the cleaning acid, concentrated hydrochloric acid (HCL) containing 50 grams/liter SnCl_2 (stannous chloride) and 20 grams/liter SbCl_3 (antimony trichloride). The two salts are added to the HCL to stop the reaction of the HCL with the steel once the rust or corrosion is removed. (Note: The fumes given off by the acid during cleaning contain gases formed from the antimony and are extremely hazardous, this portion of the cleaning must be conducted under a ventilated hood.)

After 15 minutes of cleaning the coupons are removed from the cleaning acid, rinsed with tap water and then distilled water, and wiped with a cloth to clean any deposit from the coupons. They are then returned to the cleaning acid and the procedure is repeated. After cleaning the coupons are rinsed in chloroform, air dried, and weighed.

Each coupon shall be weighed to a constant weight. The constant weight shall be two consecutive weighings of each coupon within a minimum of 0.5 milligrams of each other.

VI. EVALUATION OF CORROSION

The weight loss of each coupon is determined by subtracting the final weight from the original weight. The corrosion rate for each coupon is expressed as mils penetration per year (MPY) by the following formula:

$$\text{MPY} = (\text{weight loss (milligrams)}) (534) / ((\text{area}) (\text{time}) (\text{metal density}))$$

OR

$$\text{MPY} = (\text{weight loss (milligrams)}) (534) \text{ divided by } ((\text{area}) (\text{time}) (\text{metal density})^*)$$

(Density is 7.85 g/cc for steel*)

The final MPY value for each solution is determined by calculating an average of the three individual coupons. Average MPY from this point forward will be referred to as only MPY of the solution being tested. (Note: Wide variation of MPY of individual coupons inside the same flask typically indicates contamination of a coupon. If variation of individual MPY is too great to determine consistent data the test should be run over again. Typically coupon variation may run plus or minus 3 MPY.)

VII. EXPLANATION

To put the information into perspective it is necessary to briefly recap the corrosion test process. The corrosion value of the distilled water and the reagent grade sodium chloride is critical to this whole process. These are the two base lines used to determine products acceptability in terms of corrosion value only.

In the table following the distilled water proved to have a corrosion value of 6.00 MPY. The chart shows that the reagent grade sodium chloride has a corrected corrosion value of 45.00 MPY. This means that the original corrosion value of the reagent grade sodium chloride and the distilled water (in a 3% solution) was 51.00 MPY. That is, 6.00 MPY for the distilled water and 45.00 MPY for the reagent grade sodium chloride. The 6.00 MPY value for the distilled water was subtracted from the original 51.00 MPY for the reagent grade sodium chloride and distilled water solution to arrive at the distilled water corrected value of 45.00 MPY for the reagent grade sodium chloride.

The corrosion value of 6.00 MPY for the distilled water is subtracted from the total MPY for each of the 3% solutions for each product tested. When this calculation is completed for each product being tested the resulting value indicates the corrected corrosion value.

According to criteria adopted by PNS; "Only corrosion inhibited chemical products that are at least 70% less corrosive than reagent grade sodium chloride may be used". To determine if a product is acceptable, take the corrected corrosion value of the reagent grade sodium chloride and multiply it by 30%. In this case, 45.00 MPY multiplied by 30% equals 13.5 MPY which is the highest acceptable corrected corrosion value for any product in this test. Any product in this test, that produces a MPY value higher than 13.5 MPY is rejected.

VIII. NEGATIVE NUMBERS

Some products actually end up with a negative number as their corrected MPY value. A negative number is exceptionally good and it actually indicates that the product when mixed with distilled water in a 3% solution is less corrosive than distilled water.

To show an example of a negative number note that in Table 1 the distilled water in this test had a corrosion factor of 6.00 MPY. Also, note that the 3% solution of Wondermelt-A had a corrected corrosion value of -5.18 MPY. To quickly repeat the math used to arrive at this negative number the 3% solution corrosion value of 1.18 MPY, had subtract from it the distilled water corrosion value of 6.00 MPY. This resulted in the corrected MPY value of -5.18. The larger the negative number, the better a product is in terms of corrosion inhibiting abilities.

IX. REPORTING RESULTS

Results shall be reported in Percent Effectiveness. Percent values equal to or less than 30% are passing. The distilled water corrected values of the chemical product and the salt are used to make this calculation. The corrected value of the chemical product is divided by the corrected value of the salt; this value is then multiplied by 100 to give percent.

Example: Magic Melter II has a corrected value of 10.15
Salt has a corrected value of 45.00
Therefore: $(10.15 / 45.00) \times 100 = 22.6\%$ Pass
Acme Melter has a corrected value of 19.99
Therefore: $(19.99 / 45.00) \times 100 = 44.4\%$ Fail

TABLE 1
CHEMICAL PRODUCTS CORROSION TEST RESULTS
ALL VALUES ARE DISTILLED WATER CORRECTED

| PRODUCT | MILS/YEAR | PERCENTAGE | REMARKS |
|------------------------|--------------|---------------|---------------------------|
| *Super Stuff | -0.03 | -0.07 | Good stuff. |
| *Ice Melter | 0.035 | 0.08 | Good |
| *Magic Melter | 1.00 | 2.22 | Smells good |
| *Magic Melter II | 10.15 | 22.55 | OK |
| Acme Melter | 19.99 | 44.42 | Nice appearance |
| Acme Melter-1 | 23.71 | 52.69 | 50% |
| Wondermelt | 54.07 | 120.16 | Very corrosive |
| *Wondermelt –A | -5.18 | -11.51 | Good corrosion protection |
| Stuff | 17.00 | 37.78 | not so good |
| SALT | 45.00 | 100.00 | |
| Distilled Water | 6.00 | 13.33 | |

* Acceptable product

NOTE: The results used in the above table are for example only, and they are not firm numbers. The MPY corrosion values of the distilled water and the reagent grade sodium chloride may vary from test to test.

(3) TEST METHOD C

TEST METHOD “C” – Percent Total Settleable Solids and Percent Solids Passing A No. 10 Sieve

This test method is used to determine the amount of total settleable solids and the percent solids passing on the No. 10 sieve that are generated from a liquid chemical product when stored at a specified cold temperature without agitation.

Settleable Solids for this procedure are typically formed from chemical precipitation, chemical crystallization, or by the dense settlement of any other components of the deicing product.

Chemical precipitates are formed when specific chemical constituents within the liquid chemical product react together chemically.

Chemical crystallization begins to form when a solution is cooled below its chemical saturation point. Crystallization is the physical characteristic by which a liquid begins to turn to a solid. This physical characteristic is typically used to identify the freezing point of a liquid. This test will determine if the deicing solution can maintain its liquid state at the supplied concentration and at the specified testing temperature with no agitation.

The settlement or separation of additional component(s) (i.e. inhibitors) of the product will be examined for the formation of a dense solid layer and the ability of the chemical product to maintain a non-stratified suspension without agitation.

Total settleable solids will consist of all described parameters excluding soft settling stratification as outlined in the test methodology.

Percent Solids Passing on the No. 10 Sieve will be measured by subtracting the volume of solids retained on the sieve from the total sample volume.

I. Apparatus

1-Liter Graduated Imhoff Cone
ASTM E 11 No. 10 sieve
Rubber policeman
Graduated cylinder
Watch glass

II. Test Method

Place 1000 ml of a well-mixed (non-diluted) liquid chemical product into a graduated one-Liter Imhoff cone. Place this sample into a freezer, which has been precalibrated and stabilized to the correct specified temperature as established in each liquid chemical product category. Cover the sample with a watch glass. The sample shall remain in the freezer unagitated for a period of 168 hours. Record the temperature of the freezer daily to assure proper testing temperature. After 168 hours the sample is carefully removed from the freezer for testing.

1. Total Settleable Solids

This test method will be used to determine if the liquid chemical product is usable and if it requires agitation. It will determine the detrimental amount of settlement formed from chemical precipitation, chemical crystallization, or by the dense settlement of any other component(s) of the deicing product.

The formation of chemical precipitation and/or chemical crystallization above the prescribed limit is cause for rejection. These characteristics are observed by a dense formation of precipitate and/or crystals in the cone. Various levels of crystallization may be present if the chemical product concentration is at or near its freezing point.

The settlement of other chemical product components that can produce a dense solid layer above the prescribed limit will be cause for rejection. Stratification of material exhibited by phase separation or exhibiting a soft settlement is not to be interpreted as a dense solid layer. This type of separation is a result of the chemical product not staying homogenous through the test conditions. Samples submitted that exhibit stratification but pass all other specifications will be passed and will be categorized as "Requires Agitation".

The time used to evaluate each sample should be kept to a minimum because as the deicing solutions warm the physical characteristics within the solution change

Remove the sample contained in the Imhoff cone from the freezer. Determine readings as soon as possible because sample temperature begins to rise immediately after being removed. Measure and record the volume of settleable solids using the calibrated gradations on the cone. (Note: If the settled matter contains pockets of liquid between large settled particles, estimate the volume of these and subtract them from the volume of settled solids.) For transparent liquids the determinations are easily determined by directly reading the volume of the settleable solids in the bottom of the cone. For liquids that are not clear due to hazy, cloudy or opaque solutions or to indefinite stratified Regions use the following method can be used.

Place the sample in a room with no light. Then using a light capable of producing a concentrated beam, such as a flashlight with adjustable light features back light the sample. With this procedure determine the amount of settlement in

the bottom of the cone and the phase separation interfaces. Record the settlement value and the stratification interface volumes if present.

To determine if this settlement is a dense formation or soft settling due to a phase separation use an eight-millimeter diameter solid glass rod of sufficient length to reach the bottom of the cone. The rod diameter should allow the rod to be inserted to the bottom of the cone and large enough so as to be able to determine the slightest resistance. Gently insert the rod into the chemical product and gradually lower the rod to the bottom of the cone. If resistance is felt, mark the rod level at the top of the cone and remove. Place the rod on the outside of the cone with the mark even with the top of the cone. Read and record the volume where resistance was felt from the gradations on the cone that correspond to the tip of the rod. This volume reading is to be interpreted as a dense settlement and must not exceed the specification limit. If the rod goes completely to the bottom of the cone with no resistance record that no dense settlement was found.

If stratification is present, gently hand stir the chemical product in a clockwise direction for 45 revolutions in one minute to see if the sample will re-homogenize. Examine the chemical product again, with the light if necessary, to determine phase stratification interface levels remaining, if any. Record new levels if present. If no levels are detectable and the solution is returned to a homogenous state exhibiting no stratified layers the chemical product will be marked "Requires Agitation". If levels of stratification are still present, mark as "Requires Extreme Agitation."

The total settleable solids volume shall consist of the accumulated amounts of chemical precipitation, chemical crystallization, and the dense portion of any other constituents. The total settleable solids are reported in percent based upon the volume to volume (V/V) ratio of the settleable solids to the initial sample size.

2. Percent Solids Passing the 10 Sieve

This procedure must be conducted as fast as possible after determining the total settleable solids so that any frozen chemical crystalline materials are adequately evaluated.

Immediately after determining the total settleable solids invert the cone (or remove the tip on some models) and pour the sample through an ASTM E 11 certified Number 10 sieve. The sieve should be kept in a mixture of ice and water to keep it cold before using and between samples. Rinse the sieve with water to remove any traces of the previous sample prior to placing in the ice bath. Before using the sieve briefly shake excess water from the sieve. The sample should be poured through one-quarter section of the sieve if possible to reduce the surface area from which the sample must be retrieved. The sample on the sieve is not rinsed or pushed through the sieve by any means. All material not flowing through the sieve is rubber policed from the sieve into a graduated cylinder and the volume measured and recorded. Rubber police only the side of the sieve the material was placed on to pass through. Material that is trapped in the mesh of the sieve and does not come loose on the face of the sieve is considered passing and is not included. This volume is subtracted from the total volume of the sample to calculate the sample volume passing. The solids passing the No. 10 sieve are reported in percent based upon the volume to volume (V/V) ratio of sample volume passing to the initial sample size.

E. CHEMICAL PRODUCT CATEGORIES

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| <p style="text-align: center;">(i) Chemical Product Category 1 Corrosion Inhibited Liquid Magnesium Chloride Specifications</p> |
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In addition to the General Specifications the following requirements shall also apply:

1. Product must contain no less than 25% magnesium chloride.
Test Method: Number 1
2. Weight per gallon will be established according to the specific gravity and percentage of magnesium chloride contained in the product bid as indicated by the bidder.
Test Method: Number 2
3. Product will contain the corrosion control inhibitor in quantities not less than those indicated by the bidder. The finished deicing product, including corrosion inhibitors, must be completely accomplished at the original manufacturing plant location. Post adding of corrosion inhibitors or any other ingredients and splash mixing is unacceptable after the product has left the original manufacturing plant.
Test Method: Number 3
4. The pH must be 6.0 – 9.0
Test Method: Number 4
5. This chemical product shall not contain greater than 1.0% (V/V) Total Settleable Solids and shall have Ninety-nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -17.8°C +/- 1°C (0°F +/- 2°F) for 168 hours (Seven days).
Test Method: Number 6

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|---|
| <p style="text-align: center;">(ii) Chemical Product Category 2 Corrosion Inhibited Liquid Calcium Chloride Specifications</p> |
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In addition to the General Specifications the following requirements shall also apply:

1. Product must contain no less than 25% calcium chloride.
Test Method: Number 1
2. Weight per gallon will be established according to the specific gravity and percentage of calcium chloride contained in the product bid as indicated by the bidder.
Test Method: Number 2
3. Product will contain corrosion control inhibitor in quantities not less than those indicated by the bidder. The finished deicing product, including corrosion inhibitors, must be completely accomplished at the original manufacturing plant location. Post adding of corrosion inhibitors or any other ingredients and splash mixing is unacceptable after the product has left the original manufacturing plant.
Test Method: Number 3
4. The pH must be 6.0 – 10.0
Test Method: Number 4
5. This chemical product shall not contain greater than 1.0% (V/V) Total Settleable Solids and shall have ninety nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -29°C +/- 1°C (-20°F +/- 2°F) for 168 hours (Seven days).
Test Method: Number 6

(iv) Chemical Product Category 4
Corrosion Inhibited
Solid Sodium Chloride Specifications

In addition to the General Specifications the following requirements shall also apply:

1. Gradation of product shall be Type 1, Grade 2, for Sodium Chloride.

Test Method: Number 13

PHYSICAL REQUIREMENTS AND TOLERANCES

| Sieve Size | Wt. % Passing |
|------------|---------------|
| ¾" | 100 |
| #4 | 20 – 100 |
| #8 | 10 – 60 |
| #30 | 0 – 15 |

2. Anti-Caking agent will be included to insure that the material remains free from hard caking and suitable for its intended purpose.

Test Method: Number 14

NOTE: Salt for highway use is usually treated with either Ferric Ferrocyanide, also known as Prussian Blue, or Sodium Ferrocyanide, also known as Yellow Prussiate of Soda (YPS), to prevent the salt from caking. The amount of Prussian Blue added is 70 to 165 parts per million (ppm), equivalent to 0.33 to 1.14 pounds per ton of salt. YPS is added in the amount of 50 to 250 ppm, equivalent to 0.1 to 0.5 pounds per ton of salt. YPS is also used as an anti-caking agent in table salt, and has approval of the U.S. Food and Drug Administration. Based on exhaustive testing no evidence of toxicity was demonstrated. If used, the presence of these products will not be assessed towards the total cyanide concentration when testing this product. However, the total cyanide concentration of the original material must meet specifications. Information may be obtained from the Salt Institutes Highway Digest Publication.

Bidder may bid this product with or without the anti-caking agent. Bidders must note on the Sample Checklist if the sample does contain anti-caking agent or not. If the Bidder chooses not to add the anti-caking agent it does not prevent the bidder from assuring that the delivered product is in a free-flowing state.

3. Material must be clean and free from extraneous matter. The material must be homogenous or manufactured in such a manner to assure that the corrosion inhibitor, anti-caking agent and the chemical product does not segregate.

Test Method: Number 14

4. Moisture Content

The salt shall be dried to a maximum moisture content of 0.5 % (percent by weight). Water in excess of 0.5% of dry salt weight will not be paid for. The amount of salt to be paid for, when moisture exceeds 0.5% shall be computed as follows:

Pay Weight = (100.5 x Wet Wt. of Salt) divided by (100 + Percent of Moisture)

NOTE: The moisture content is judged as available free water. Organic Bases Corrosion Inhibitors that are used in the processes of making this product that impart a loss in weight (Organic Matter Weight Loss) when ran according to the prescribe test method but do not reflect the loss of available free water shall be limited to a maximum of 3% by weight. Products that exceed the 3% by weight limit shall be subject to the same equation as above with the limit being adjusted to 3%. Additionally, the use of said inhibitors may be used provided that the material remain free flowing, will not clump, cause hard caking and remains suitable for use. The use of these types of inhibitors may require additional testing to be provided by the bidder at the request of the PNS before approval to the qualified products list is granted. The amount of available water in the inhibitor and the base salt will be required along with a mass balance analysis of the two products to show the theoretical amount of free water that is available in the finished product.

Test Method: Number 12

5. Corrosion Control Inhibitor and Concentration

Test Method: Number 3

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| <p style="text-align: center;">(vii) Chemical Product Category 7 Solid Calcium Magnesium Acetate Specifications</p> |
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In addition to the General Specifications the following requirements shall also apply:

1. Product will consist of Calcium Magnesium Acetate (CMA)

Only those ingredients that are normally found in high quality CMA will be acceptable. Any products that do not meet this requirement during the bid process will be immediately rejected unless scientific data shows the additional ingredients/ingredients result in an improvement to the product.
Test Method: Number 14
2. Calcium to magnesium mole ratio shall be 3 to 7
Test Method: Number 1
3. This product when liquefied at or near a 25% concentration shall not contain greater than 4.0 % (V/V) settleable solids and shall have ninety nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -12°C +/- 1°C (-10°F +/- 2°F) for 168 hours (Seven days).
Test Method: Number 6
4. Moisture (free and hydration) shall not exceed 10%.
Test Method: Number 12
5. Product attrition shall be less than 2.5% with minimum dust generated on handling.
Test Method: Number 14 and any other tests deemed necessary.
6. Residual base shall be 0.30 milliequivalents base per gram of sample.
Test Method: Number 11
7. The pH of product in a 10% solution shall be 8 to 10.
Test Method: Number 4 except in this case a 10% solution will be used.

**(viii) Chemical Product Category 8
Non Corrosion Inhibited
Solid Sodium Chloride Specifications**

This specification shall apply to salts with two different levels of acceptable moisture content. Category 8A shall have a maximum moisture content of 0.5% and Category 8B shall have a maximum moisture content of 5.0%.

In addition to the General Specifications the following requirements shall also apply to both 8A and 8B:

1. Gradation of product shall be Type 1, Grade 2, for Sodium Chloride.

Test Method: Number 13

PHYSICAL REQUIREMENTS AND TOLERANCES

| Sieve Size | Wt % Passing |
|------------|--------------|
| ¾" | 100 |
| #4 | 20-100 |
| #8 | 10-60 |
| #30 | 0-15 |

2. Anti-Caking agent will be included to insure that the material remains free from hard caking and suitable for it's intended purpose.

Test Method: Number 14

NOTE: Salt for highway use is usually treated with either Ferric Ferrocyanide, also known as Prussian Blue, or Sodium Ferrocyanide, also known as Yellow Prussiate of Soda (YPS), to prevent the salt from caking. The amount of Prussian Blue added is 70 to 165 parts per million (PPM), equivalent to 0.33 to 1.14 pounds per ton of salt. YPS is added in the amount of 50 to 250 PPM, equivalent to 0.1 to 0.5 pounds per ton of salt. YPS is also used as an anti-caking agent in table salt, and has approval of the U.S. Food and Drug Administration. Based on exhaustive testing no evidence of toxicity was demonstrated. If used, the presence of these products will not be assessed towards the total cyanide concentration when testing this product. However, the total cyanide concentration of the original material must meet specifications. Information may be obtained from the Salt Institutes Highway Digest Publication.

Bidder may bid this product with or without the anti-caking agent. Bidders must note on the Sample Checklist if the sample does contain anti-caking agent or not. If the Bidder chooses not to add the anti-caking agent it does not prevent the bidder from assuring that the delivered product is in a free-flowing state.

3. Material must be clean and free from extraneous matter. The material must be homogenous or manufactured in such a manner to assure that the corrosion inhibitor, anti-caking agent and the chemical product does not segregate.

Test Method: Number 14

4. Moisture Content

Category 8A

The salt shall be dried to a maximum moisture content of 0.5 % (percent by weight). Water in excess of 0.5% of dry salt weight will not be paid for. The amount of salt to be paid for, when moisture exceeds 0.5% shall be computed as follows:

Pay Weight = (100.5 x Wet Wt. of Salt) divided by (100 + Percent of Moisture)

Test Method: Number 12

Category 8B

The salt shall be dried to a maximum moisture content of 5.0 % (percent by weight). Water in excess of 5.0% of dry salt weight will not be paid for. The amount of salt to be paid for, when moisture exceeds 5.0% shall be computed as follows:

Pay Weight = (105.0 x Wet Wt. of Salt) divided by (100 + Percent of Moisture)

Test Method: Number 12

(vi) Test Methods for Categories

Test methods shall be as published by the Pacific Northwest Snowfighters (PNS) Association. Reference PNS's web site located at http://www.wsdot.wa.gov/fossc/maint/pns/htm/TEST_MET.htm. The following test methods shall apply to all products supplied through this contract. As test methods are revised or updated by PNS, they shall automatically apply to this contract.

1. Percent Concentration of Active Ingredient In The Liquid

Test Method: Atomic Absorption or Inductively Coupled Plasma Spectrophotometry as described in "Standard Methods for the Examination of Water and Waste Water", APHA-AWWA-WPCF is acceptable. Test Method "A" in Appendix "A" is used to determine percent concentration of Calcium Chloride or Magnesium Chloride by Atomic Absorption. The operator should be aware that the high solids content of the samples can present special considerations when conducting the analysis. The AA method as describe is Appendix A will be used to determine compliance and or liquidated damages.

2. Weight Per Gallon

Test Method: Specific Gravity by ASTM D 1429 Test Method A – Pycnometer at 20° C +/- 1° C.

3. Corrosion Control Inhibitor Presence and Concentration

Test Method: The Materials Laboratory may use the test procedures provided by the bidder or manufacture for testing quantitative concentrations of additives. These same tests can then be used to verify that materials being delivered are the same as those previously tested and approved in the bid process.

4. pH

Test Method: ASTM D 1293 except a dilution shall be made of 1 part chemical product to 4 parts distilled water before attempting a reading.

5. Corrosion Rate

Test Method: NACE Standard TM0169-95 (1995 Revision) as modified by PNS. This procedure is listed as Test Method "B" in Appendix A.

6. Percent Total Settleable Solids and Percent Solids Passing a 10 Sieve

Test Method: This procedure is listed as Test Method "C" in Appendix A.

7. Total Phosphorus

Test Method: Total Phosphorous as described in "Standard Methods for the examination of Water and Waste Water", APHA-AWWA-WPCF. Total phosphorus shall be determined upon a 1% test solution. The Total Phosphorus value determined from the 1% solution is the value to be reported without being calculated for the dilution. The test solution should be prepared by placing 10 ml of sample into 500 ml of ASTM D 1193 Type II distilled water contained in a 1 L volumetric flask to which 2.5 ml 1 + 1 sulfuric acid has been added. Swirl the contents and make up to 1000 ml with distilled water.

8. Total Cyanide

Test Method: Total Cyanide as described in "Standard Methods for the examination of Water and Waste Water", APHA-AWWA-WPCF.

9. Total Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Selenium and Zinc.

Test Method: Atomic Absorption Spectrophotometry or Plasma Emission Spectroscopy as described in "Standard Methods for the examination of Water and Waste Water", APHA-AWWA-WPCF.

10. Total Mercury

Test Method: Cold Vapor Atomic Absorption Spectrophotometry as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

11. Milliequivalents OR “meq”

Test Method: This is a measure of the amount of unreacted base in the product. “meq” means milliequivalents or the milligrams of acetic acid to neutralize 1 gram of unreacted base.

Method for measuring unreacted base is a standard acid/base titration procedure. A fixed volume of acid (30 ml of 0.1 N HCl) is added to 1 gram sample of CMA. The excess acid is titrated with a standard base (0.1 N NaOH) to phenolphthalein endpoint, pH of 8.6.

12. Moisture Content Of Solid Chemical Products.

Test Method: According to ASTM E 534

13. Gradation

Test Method: Gradation shall be ran according to ASTM D 632. The sample size shall be a minimum of 300 grams and be hand shaken through each sieve until the sample has been adequately processed. Caution: Care should be used when running the gradation test, as the salt is very soft and can be resized by over shaking. Salts that contain sticky organic matter inhibitors may require additional attention with a rubber policeman to insure that the sample passes the screens correctly as the sticky inhibitors will tend to clump up smaller particles of salt and prohibit them from being analyzed correctly.

14. Visual Inspection and Field Observations.

Test Method: Visual inspection and field observations to assure that the material remains clean and free of extraneous matter, free from hard caking, does not segregate, and remains suitable for the intended purpose and as otherwise outlined in Section IV. NOTE: Purchaser may use any laboratory test method necessary to verify conclusions from visual inspections.

15. Toxicity Test

Test Method: According to “Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms”, Third Edition, EPA-600/4-91/002.

16. Ammonia – Nitrogen

Test Method: Ammonia as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

17. Total Kjeldalh Nitrogen

Test Method: Total Kjeldalh Nitrogen as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

18. Nitrate and Nitrite as Nitrogen

Test Method: Nitrate and Nitrite as Nitrogen as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

19. Biological Oxygen Demand

Test Method: Biological Oxygen Demand as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

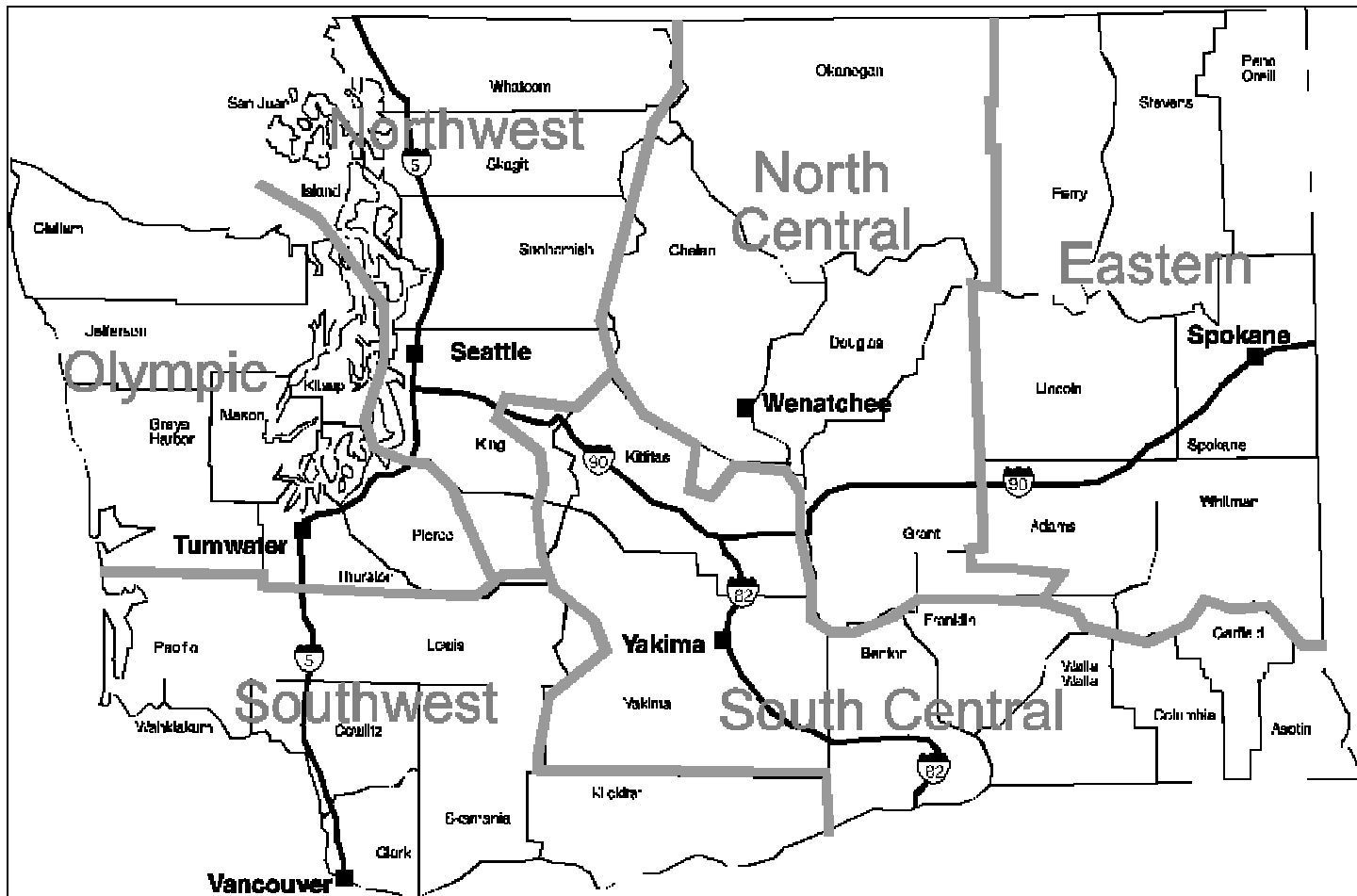
20. Chemical Oxygen Demand

Test Method: Chemical Oxygen Demand as described in “Standard Methods for the examination of Water and Waste Water”, APHA-AWWA-WPCF.

21. Frictional Analysis

Test Method: Frictional Analysis shall be conducted on products that have been applied at the prescribe application rate to a pavement surface within a sealed and controlled humidity chamber. The frictional coefficient shall be measured on pavement surface as the humidity in the chamber is lowered and raised over the course of time. The data shall show a plot of the humidity curve and a plot of the coefficient of friction curve over time. The device that measures the friction coefficient shall be calibrated and certified prior to use on the sample analysis.

IV. WSDOT REGION AND MAINTENANCE AREA MAPS



WSDOT Maintenance Areas Map



V. WSDOT CONTACTS AT REGIONS

Northwest Region (HQ Seattle) contact Samantha Zito at 206-440-4106

North Central Region (HQ Wenatchee) contact Todd Murren at 509-667-3023

Olympic Region (HQ Tumwater) contact Jay Wells at 360-357-2645

Southwest Region (HQ Vancouver, WA) contact Harry Speelman at 360-905-2286

South Central Region (HQ Yakima) contact Elvira Loran at 509-577-1611

Eastern Region (HQ Spokane) contact Dave Thompson at 509-324-6075

VI. WSDOT DELIVERY LOCATIONS

| WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) DELIVERY LOCATIONS BY REGIONS | | |
|--|-------------------------|---|
| Region 1 Northwest Region (Includes the counties of: Whatcom, San Juan, Skagit, Island, Snohomish and King) | | |
| Site | Maintenance Area | Location |
| 1 | MA 1 | Bellingham Maintenance Site, MA 1 3920 Airport Way Bellingham WA 98226 |
| 2 | MA 1 | Maple Falls Maintenance Site, MA 1 7516 Mt. Baker Highway Maple Falls WA |
| 3 | MA 1 | Deming Maintenance Facility 4450 Valley HWY Deming, WA 98244 |
| 4 | MA 1 | Alger-Bowhill Maintenance Site 236 Interstate Hwy 5 SB. Bowhill WA |
| 5 | MA 2 | Heichel Maintenance Site, MA 2 1500 North of SR 532 on 12 th Avenue NW |
| 6 | MA 2 | Hazel Maintenance Site, MA 2 31509 SR 530 NE Arlington WA |
| 7 | MA 2 | Coupeville Maintenance Site, MA 2 610 West, SR 20 Coupeville WA (Whidbey Island) 476 Key Stone Hill Rd. Coupeville WA 98239 |
| 8 | MA 2 | Mt. Vernon Maintenance Site, MA 2 1783 Cedardale Road Mt. Vernon WA |
| 9 | MA 2 | Birdsview Maintenance Site, MA 2 SR 20, MP 83.9, Approx. 200 yd. West of Cape Horn Road |
| 10 | MA 2 | Arlington Maintenance Site, MA 2 521 South Olympic Street Arlington WA |
| 11 | MA 2 | Coal Creek (Sedro Woolley) Maintenance Site, MA 2 2544 SR 20, MP 70 Just East of Sims Road 27434 SR 20 Sedro-woolley WA 98284 SR 20 MP 70 |
| 12 | MA 2 | Swinomish Maintenance Site, MA 2 SR 20, MP 50 Under Duane Berentson Bridge |
| 13 | MA 2 | Newhalem Maintenance site 502 Newhalem St. Newhalem WA 98283 SR 20 MP 120 |
| 14 | MA 3 | Everett Maintenance Site, MA 3 709 N Broadway Everett, WA |

| WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) DELIVERY LOCATIONS BY REGIONS | | |
|--|-------------------------|---|
| Region 1 Northwest Region (Includes the counties of: Whatcom, San Juan, Skagit, Island, Snohomish and King) | | |
| Site | Maintenance Area | Location |
| 15 | MA 3 | Monroe Maintenance Site, MA 3 14200 Cascade View Drive Monroe WA |
| 16 | MA 3 | Skykomish 73930 N.E. Old Cascade Hwy. Skykomish WA |
| 17 | MA 4 | Renton Maintenance Site, MA 4 2740 NE 3 rd Renton WA 98058 |
| 18 | MA 4 | Enumclaw Maintenance Site, MA 4 333 Griffin Avenue Enumclaw WA 98022 |
| 19 | MA 4 | Kent Maintenance Site, MA 4 26620 68 th Avenue South Kent WA 98032 |
| 20 | MA 4 | Greenwater Maintenance Site, MA 4 59310 SR 410 Greenwater WA 98022 |
| 21 | MA 4 | Geneva Maintenance Site 3440 37 th Ave, South Auburn, WA 98003 |
| 22 | MA 5 | Preston Maintenance Site, MA 4 29615 SE Preston Way (MP 22) Issaquah WA 98027 |
| 23 | MA 5 | Spokane St Maintenance Site, MA 5 6 th Avenue South Seattle WA 450 Spokane St. S. Seattle |
| 24 | MA 5 | Ballinger Maintenance Facility 1621 North 205 th Shoreline, WA 98133 |
| 25 | MA 5 | Northup 10833 Northup Way NE Bellevue, WA |

| Region 2 North Central Region (Includes the counties of: Okanogan, Ferry, Chelan, Douglas, and Grant) | | |
|--|-------------------------|---|
| Site | Maintenance Area | Location |
| 1 | MA 1 | Liberty on Blewett Pass (stockpile site) ICP 250B M.P. 151.8 on SR 97 |
| 2 | MA 1 | Little Eva's on Stevens Pass (stockpile site) ICP 027B M.P. 81.7 North Side of Hwy US 2 MP 81.7 |

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| Region 2 North Central Region (Includes the counties of: Okanogan, Ferry, Chelan, Douglas, and Grant) | | |
|--|-------------------------|--|
| Site | Maintenance Area | Location |
| 3 | MA 1 | Berne Maintenance Yard, MA 1, ICP# 2-0-025B, SR 2, MP 73, north side of highway |
| 4 | MA 1 | Wenatchee District Site, MA 1, ICP# 2-0-025B 2830 Euclid Avenue, Wenatchee WA 98801 US 2 MP 119 |
| 5 | MA 1 | Chelan Maintenance Yard, MA 1. ICP# 2-1-019B, SR 150, MP 9.6, SW side of highway |
| 6 | MA 1 | Waterville Maintenance Yard, MA 1, ICP# 2-1-107B, SR 2, MP 149.5, SE Side of highway |
| 7 | MA 1 | Blewett Maintenance Site, MA 1, ICP# 2-1-067B, SR 97, MP 178.2, West side of highway US 2 MP178 |
| 8 | MA 1 | Leavenworth Maintenance Yard MA 1, ICP# 2-1-025A, SR 2, MP 99.5 Jct. W/Mill Street Leavenworth, WA |
| 9 | MA 1 | Scenic US 2 MP 58.5 |
| 10 | MA 2 | Moses Lake Maintenance Site, MA 2, ICP# 2-2-021B, SR 117, MP 50.98 Ram Road & Kittleson Road |
| 11 | MA 2 | Ephrata Maintenance Site, MA 2, ICP# 2-2-200B, 804 North Basin St Ephrata WA 98823 |
| 12 | MA 2 | George Maintenance Site, MA 2, ICP# 2-2-217B, SR 90, Exit 149, Rt. 0.3 miles on Frontage Road, 302 Sam Avenue500 |
| 13 | MA 2 | Othello Maintenance Site, MA 2, ICP# 2-2-092B, SR 26, MP 41, South side of highway |
| 14 | MA 2 | Vantage Stockpile Site, MA 2 SR 90, West Side of Columbia River Bridge, South of Highway |
| 15 | MA 2 | Trinidad Stockpile Site, MA 2 SR 28, MP 21.25, South Side |
| 16 | MA 3 | Omak Grade Site SR155 Milepost 78.3 ICP #103B. |
| 17 | MA 3 | Brewster Maintenance site SR 97 Mile Post 259.14 ICP #202B. |
| 18 | MA 3 | Twisp Maintenance Site, MA 3, ICP# 2-3-201B, SR 153, MP 30.4, (0.3 mile from SR 20), South Side of highway |
| 19 | MA 3 | Tonasket Maintenance Site, MA 3, ICP# 2-3-102B, SR 97, MP 314.2, East Side of highway |
| 20 | MA 3 | Brewster Maintenance Site, MA 3, ICP# 2-3-202B, SR 97, MP 259.14, West Side |

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| Region 2 North Central Region (Includes the counties of: Okanogan, Ferry, Chelan, Douglas, and Grant) | | |
|--|-------------------------|---|
| Site | Maintenance Area | Location |
| 21 | MA 3 | Coulee City Maintenance Site, MA 3, ICP# 2-3-348B, SR 2, MP 191.6, West Side of highway |
| 22 | MA 3 | Electric City Maintenance Site, MA 3, ICP# 2-3-040B, SR 155, MP 23.8, West Side of highway |
| 23 | MA 3 | Nespelem Stockpile Site, MA3 SR 155, MP 47.5 |
| 24 | MA 3 | Mansfield MA 3, ICP# 2-3-360B SR 172, Milepost 22, 0.3 Mi. on 14 th St NE |
| 25 | MA 3 | Okanogan Maintenance Site, MA 3,, ICP# 2-3-101B, SR97 Milepost, South side of highway SR 97 MP 288.62 |
| 26 | MA 3 | Leahy Junction ICP# 2-3-341B SR 17 MP 118.7 |
| 27 | MA 3 | Fordaire Stockpile ICP# 2-3-333B SR 155 Junction MP 0.0 & SR2 MP 193.44 |

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| Region 3 Olympic Region (Includes the counties of: Clallam, Jefferson, Grays Harbor, Mason, Kitsap, Thurston and Pierce) | | |
|---|-------------------------|---|
| Site | Maintenance Area | Location |
| 1 | MA 1 | Tacoma/Lakeview 11211 41 st Ave SW Tacoma, WA 98499-4694 |
| 2 | MA 1 | Mottman 2120 RW Johnson Blvd SW Tumwater, WA 98512 |
| 3 | MA 1 | Alder 50025 Mountain Hwy E SR-7 MP 22 northside Eatonville, WA 98328 |
| 4 | MA 1 | Willows 3150 S Meridian Puyallup, WA 98373 |
| 5 | MA 2 | Port Orchard 8293 SE Spring Creek Rd. Port Orchard, WA 98367-8192 |
| 6 | MA 2 | Shelton W6033 Dayton Airport Rd Shelton, WA 98584 W 633 DAYTON-AIRPORT ROAD, Shelton, WA 98584 |
| 7 | MA 2 | Mount Walker SR 101 MP 301.5 NE Side 301533 Hwy 101 Brinnon, WA 98320 |
| 8 | MA 2 | Lofall SR 3 MP 56 Eastside 27080 Hwy 3 NW Poulsbo, WA 98370 |
| 9 | MA 3 | Port Angeles South "C" Street Port Angeles WA 98362-7456 |
| 10 | MA 3 | Forks Maintenance Facility 115 Industrial Center, Forks, SR-101 MP 193.2 Forks, WA 98331 |
| 11 | MA 3 | Discovery Bay Maintenance Facility SR101, MP 281.08, NW OF DISCOVERY BAY, 281154 Hwy. 101, Port Townsend, WA 98368 |
| 12 | MA 3 | Sekiu Maintenance facility SR112, MP 14, No Street Address, Sekiu, WA |
| 13 | MA 3 | Elwha SR101, MP 238.76, NORTHSIDE, No Street Address |
| 14 | MA 3 | Heckleville MP 281.15 US 101 @ Discovery Bay |
| 15 | MA 4 | Aberdeen 4801 Olympic Hwy Aberdeen, WA 98520-6922 |

| Region 3 Olympic Region (Includes the counties of: Clallam, Jefferson, Grays Harbor, Mason, Kitsap, Thurston and Pierce) | | |
|---|-------------------------|---|
| Site | Maintenance Area | Location |
| 16 | MA 4 | Elma 28 Twidwell Rd, MP 21.79 Hwy 12 Elma, WA 98541 SR-12, MP 21.80, Left side, 15 Twidwell Road, Elma, WA 98541 |
| 17 | MA 4 | Amanda Park SR 101, MP 128.22, LEFTSIDE, 6387 State Highway 101, Amanda Park, WA 98526 |
| 18 | MA 4 | Central Park SR-12, MP 3.95, 4801 Olympic Highway, Aberdeen, WA 98520 |
| 19 | MA 4 | Rock Candy Mountain SR8, MP 16.11, Right Side, No Street Address |
| 20 | MA 4 | Copalis 648 Copalis Beach Road, Copalis, WA 98535 |
| 21 | MA 4 | Bernard Creek Pit SR-101 at MP 92.5, Left side, no street address |

| Region 4 Southwest Region (Includes the counties of: Pacific, Lewis, Wahkiakum, Cowlitz, Clark, Skamania and Klickitat) | | |
|--|-------------------------|---|
| Site | Maintenance Area | Location |
| 1 | MA 1 | 134 th Street Maintenance Site, MA 1 SR 205, MP 36.57, West Side Vancouver WA 13402 NE 20 th Ave Vancouver, Wa |
| 2 | MA 1 | Kelso Maintenance Site, MA 1 2400 Talley Way Kelso WA |
| 3 | MA 1 | Woodland Maintenance Facility 1610 Downriver Drive Woodland, WA 98674 |
| 4 | MA 1 | Washougal Maintenance Facility 35015 Sunset View Rd. Wash., Wa |
| 5 | MA 1 | Fargher Lake Maintenance Facility 36520 NE Lewisville Hwy Fargher Lake, WA |
| 6 | MA 1 | Mount St. Helens Maintenance Facility 11201 Sediment Dam Road North, SR 504, MP 21.08 (near Kid Valley) |
| 7 | MA 2 | Morton Maintenance Site, MA 2 130 Chapman Road (West Side) SR 508, MP 31.29 Morton WA |

| Region 4 Southwest Region (Includes the counties of: Pacific, Lewis, Wahkiakum, Cowlitz, Clark, Skamania and Klickitat) | | |
|--|-------------------------|--|
| Site | Maintenance Area | Location |
| 8 | MA 2 | Toledo Maintenance Site, MA 2 1.5 miles east of I-5 on Toledo/Vader Rd Toledo, WA 98591 385 Toledo Vader Rd |
| 9 | MA 2 | Packwood Maintenance Site, MA 2, SR 12, Milepost 131 Packwood, WA 12898 US 12 |
| 10 | MA 2 | Chehalis Maintenance Site, MA 2 1411 Rush Road Chehalis WA |
| 11 | MA 3 | Raymond Maintenance Site, MA 3 103 5 th Street Raymond WA |
| 12 | MA 3 | Naselle Maintenance Site, MA 3 SR 4, MP 4.94, North Side Naselle WA 795 SR 4 |
| 13 | MA 3 | Cathlamet Maintenance Site, MA 3 SR 4 MP 36.4 South Side Cathlamet WA 286 E. SR 4 |
| 14 | MA 3 | McCormick Stockpile North 5790 Pe Ell MP 26.3 |
| 15 | MA 4 | Goldendale Maintenance Site, MA 4 1261 Scalehouse Road Goldendale WA |
| 16 | MA 4 | Bingen Bingen Maintenance MP 66 SR 14 |

| Region 5 South Central Region (Includes the counties of: Kittitas, Yakima, Benton, Franklin, Walla Walla, Columbia, Garfield and Asotin) | | |
|---|-------------------------|--|
| Site | Maintenance Area | Location |
| 1 | MA 1 | Camp Mason Maintenance Site, MA 1 Exit 42 off I-90, Go South, Cross River, Shop on Right 56500 SE Camp Mason Rd. North Bend |
| 2 | MA 1 | Easton Maintenance Site, MA 1 Exit 71, off I-90, Go South to Stop Sign, Turn Left, Shop on Right 2300 Railroad Street Easton |
| 3 | MA 1 | Bullfrog Maintenance Shop South Bullfrog Road Cle Elum, WA 98922 151 South Bullfrog Rd. Cle Elum |

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| Region 5 South Central Region (Includes the counties of: Kittitas, Yakima, Benton, Franklin, Walla Walla, Columbia, Garfield and Asotin) | | |
|---|-------------------------|--|
| Site | Maintenance Area | Location |
| 4 | MA 1 | Ellensburg Maintenance Site, MA 1 749 Cascade Way Exit off I-90, go North into town on Cascade Way, Shop on Left on Cascade Way |
| 5 | MA 1 | Rye Grass Maintenance Site MP 126 on I-90 |
| 6 | MA 1 | Hyak Interchange 4850 SR 906 Snoqualmie Pass, WA |
| 7 | MA 1 | Elk Heights Storage Site I-90 MP 93.5 |
| 8 | MA 2 | Selah Maintenance Site, MA 2 SR 82, Exit 29 to East Selah Road 900 East Selah Road 820 East Selah Rd. Yakima |
| 9 | MA 2 | Rimrock Maintenance Site, MA 2 SR 410, ¼ Mile West of SR 12/410 Jct. 5 Miles West of Naches 771 Hwy. 410 Naches |
| 10 | MA 2 | Toppenish Maintenance Site, MA 2 ¼ Mile West of Intersection of SR 97 & Fort Road Toppenish WA 231 Fort Rd. Toppenish |
| 11 | MA 2 | Granger Maintenance Site, MA 2 Mile East of Intersection of SR 82 & SR 223 (Intersection of County Roads: Wine Country 7 Beam Road) Granger WA Beam Rd. & Yakima Valley Hwy. |
| 12 | MA 2 | Cotton wood Maintenance Site, MA 2 SR 410, MP 99, 21 miles West of Naches 17062 Hwy. 410 Naches |
| 13 | MA 2 | Sulfur Creek SR 241 MP 0.45 |
| 14 | MA 3 | Prosser Maintenance Site, MA 3 SR 221 & Sales Yard Road ½ Mile South of SR 22 & SR 221 Jct. 2385 Sales Yard Rd. Prosser |
| 15 | MA 3 | Connell Maintenance Site, MA 3, SR 260, MP 6.9, ½ Mile North of SR 260 on Columbia Street 850 W. Hawthorne Connell |
| 16 | MA 3 | Bird House Maintenance Site, MA 3 SR 182, MP 207 2/10 Mile South of SR 182 on Kennedy Road (2 miles East of Interchange 82 & 182 MP 2.07, Birdhouse is around Richland) |
| 17 | MA 3 | Locust Grove Maintenance Site, MA 3 SR 82, MP 114.22, 1/10 Mile East SR 82 at Locust Grove Road (1 mile East of Interchange 395 & SR82 MP114, Locust Grove is near Kennewick) |

| Region 5 South Central Region (Includes the counties of: Kittitas, Yakima, Benton, Franklin, Walla Walla, Columbia, Garfield and Asotin) | | |
|---|-------------------------|---|
| Site | Maintenance Area | Location |
| 18 | MA 3 | Pasco Maintenance Site, MA 3 SR 182, MP 11.5 1816 North 4 th Avenue Pasco WA |
| 19 | MA 4 | Wallula Stockpile Site, MA 4 SR 12, MP 308 ½ Mile East of SR 12 & SR 730 Jct. |
| 20 | MA 4 | Walla Walla Maintenance Site, MA 4 ½ Mile off SR 12 at MP 340.54 North off Highway onto “G” Street 1210 “G” Street Walla Walla |
| 21 | MA 4 | SR 124, SR 125 Stockpile Site, MA 4 SR 124 & 125 Jct., Approx. 1/8 Mile West on South Side of SR 124 |
| 22 | MA 4 | Dayton Maintenance Site, MA 4 SR 12, MP 366.5, South Side Western Edge of City of Dayton 529 W. Main Dayton |
| 23 | MA 4 | Delaney Stockpile Site, MA 4 SR 12, MP 381.2, South Side Approx. 13 Miles East of City of Dayton |
| 24 | MA 4 | Dodge Jct. Stockpile Site, MA 4 SR 12, MP 390, North Side Approx. 12 Miles West of City of Pomeroy |
| 25 | MA 4 | Pomeroy Maintenance Site, MA 4 SR 12, MP 405.2, South Side Approx. 1.5 Miles East of City of Pomeroy 330 Hwy. 12 E. Pomeroy |
| 26 | MA 4 | Alpowa Stockpile Site #5404-004B on SR 12 MP 413, 8 Miles East of Pomeroy |
| 27 | MA 4 | Clarkston Maintenance Site, MA 4 SR 12, MP 432.6, South Side First Building of SR 12 Entering the City of Clarkston 1501 Bridge Street Clarkston |
| 28 | MA 4 | Anatone Maintenance Site, MA , MA SR 129, MP 17.4, West Side Approx. 25 Miles South of Clarkston SR 129 & Mill Rd. Anatone |
| 29 | MA 4 | Grand Rond River SR 129 MP 4.3 |

| Region 6 Eastern Region (Includes the counties of: Stevens, Pend Oreille, Lincoln, Spokane, Adams and Whitman) | | |
|---|-------------------------|--|
| Site | Maintenance Area | Location |
| 1 | MA 1 | Spokane Maintenance Shed, MA 1 North 12223 SR 395 Spokane, WA |
| 2 | MA1 | Nine Mile Falls Pit Site, MA 1 0.3 miles West of MP 9.2 on SR 291 On Charles Road |
| 3 | MA 1 | Newport Maintenance Shed, MA 1 SR 2, MP 334 Newport, WA |
| 4 | MA 1 | Pines Maintenance Shed, MA 1 I-90 and Pines Rd., MP 290 Spokane Valley, WA |
| 5 | MA 1 | Geiger Maintenance Shed, MA 1 Thorpe Rd., off of I-90 Spokane, WA |
| 6 | MA 1 | 4 Lakes Pit Site, MA 1, SR 904, MP 16 |
| 7 | MA 1 | Tyler Pit Site, MA 1, SR 904, MP 3, south side of road |
| 8 | MA 1 | Penrith Pit Site SR 2 MP 331, west side of road (Pit site is approximately 2 miles South of the city of Newport on SR2 and located to the right) |
| 9 | MA 1 | Excelsior Pit Site SR 195 MP 88, southbound pit is on eastside of road |
| 10 | MA 1 | Deep Creek Pit Site SR 2 MP 272, north side of road |
| 11 | MA 1 | MP317 Pit Site SR 2 MP 317, eastside of road MP. 317. (Pit site is located on SR2, approximately 23 miles north of Spokane on the right side next to M. P. 317) |
| 12 | MA 2 | Colfax Maintenance Area II, 43101, MA 2 SR 195 (M.P. 43.86), Colfax, WA 99111 |
| 13 | MA 2 | Pullman Shed, MA 2 980 NW Davis Way Pullman, WA 99763 |
| 14 | MA 2 | Oaksdale SR 27,MP 35.96 501 South Highway 27 Oakesdale WA 99158 |
| 15 | MA 2 | Washtucna SR 26, Jct with 261, Northside, N.W. 600 Main Street Washtucna WA 99371 |
| 16 | MA 2 | Rosalia SR 195 3152 SR 271 Rosalia, WA 99170 |
| 17 | MA 3 | Ritzville Corral Maintenance Site, MA 3, I-90, MP 220 SR 395 & I-90 Jct. |

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| Region 6 Eastern Region (Includes the counties of: Stevens, Pend Oreille, Lincoln, Spokane, Adams and Whitman) | | |
|---|-------------------------|---|
| Site | Maintenance Area | Location |
| 18 | MA 3 | Sprague Maintenance Site, MA 3 SR 23 & I-90 Jct., on SR 23 |
| 19 | MA 3 | Wilbur Airport Pit, MA 3 SR 2, MP 220.2, (South Side) ½ Mile West of SR 2, & SR 21 Jct. |
| 20 | MA 3 | Davenport East Pit, MA 3 SR 25, MP .02, Just East of Davenport |
| 21 | MA 3 | Odessa SR 21 at MP 55.5 |
| 22 | MA 4 | Colville Maintenance Site, MA 4 SR 395, MP 229.9, East Side 440 N. Hwy 395 |
| 23 | MA 4 | Republic Maintenance Facility, MA 4 SR 21, South of Republic, MP 159.01 on West side of highway. |
| 24 | MA 4 | Grouse Creek Maintenance Facility, MA 4 SR 395 and Roitz County Road, MP 196.78 on East side of highway. |
| 25 | MA 4 | Ione 4.3 on SR 31 |

VII. PRICE SHEETS

| <p style="text-align: center;">Bulk Prices</p> <p>Prices are in US dollars (\$) and volumes are in US Short Tons (2000 pounds). Areas are Maintenance Areas within a WSDOT Region. Product packaging for Liquid Categories 1, 2 and 3 shall be bulk in tanker trucks, and for Solid Categories 4, 5, 7, 8(a) and 8(b) are in bulk truckloads.</p> | | | | | | | | |
|--|--------------|--------------|------|----------|------|------|----------|-------------|
| PNS Categories | 1 | 2 | 3 | 4 | 5 | 7 | 8a | 8b |
| Contractors | Dust-busters | America West | None | Cargill | None | None | Cargill | Enviro-tech |
| Region 1, Northwest | | | | | | | | |
| Area 1 | \$112.88 | \$136.47 | | \$149.70 | | | \$101.60 | |
| Area 2 | \$108.08 | \$136.95 | | \$148.95 | | | \$101.45 | |
| Area 3 | \$106.88 | \$128.88 | | \$148.30 | | | \$101.45 | |
| Area 4 | \$100.28 | \$128.88 | | \$143.05 | | | \$94.60 | |
| Area 5 | \$100.88 | \$127.45 | | \$149.45 | | | \$95.20 | |
| Region 2, North Central | | | | | | | | |
| Area 1 | \$107.42 | \$121.98 | | \$143.75 | | | \$98.40 | \$100.75 |
| Area 2 | \$98.42 | \$113.39 | | \$143.20 | | | \$93.10 | \$94.09 |
| Area 3 | \$100.22 | \$122.23 | | \$143.20 | | | \$98.65 | \$99.37 |
| Region 3, Olympic | | | | | | | | |
| Area 1 | \$90.48 | \$129.35 | | \$138.44 | | | \$91.40 | |
| Area 2 | \$92.28 | \$134.10 | | \$135.40 | | | \$97.50 | |
| Area 3 | \$121.28 | \$145.98 | | \$143.44 | | | \$101.50 | |
| Area 4 | \$108.08 | \$137.90 | | \$135.46 | | | \$93.50 | |
| Region 4, Southwest | | | | | | | | |
| Area 1 | \$92.08 | \$129.35 | | \$130.85 | | | \$84.50 | |
| Area 2 | \$98.08 | \$126.98 | | \$131.43 | | | \$84.50 | |
| Area 3 | \$98.68 | \$136.95 | | \$132.76 | | | \$91.50 | |
| Area 4 | \$86.68 | \$117.95 | | \$131.78 | | | \$89.60 | |
| Region 5, South Central | | | | | | | | |
| Area 1 | \$104.00 | \$119.85 | | \$138.45 | | | \$92.90 | \$101.43 |
| Area 2 | \$99.00 | \$118.60 | | \$138.64 | | | \$91.90 | \$104.78 |
| Area 3 | \$90.00 | \$116.60 | | \$135.24 | | | \$90.25 | \$97.19 |
| Area 4 | \$95.00 | \$118.60 | | \$140.79 | | | \$101.30 | \$104.09 |
| Region 6, Eastern | | | | | | | | |
| Area 1 | \$89.00 | \$114.00 | | \$141.98 | | | \$97.40 | \$102.68 |
| Area 2 | \$91.00 | \$117.00 | | \$143.55 | | | \$98.50 | \$102.33 |
| Area 3 | \$91.00 | \$117.00 | | \$145.02 | | | \$95.00 | \$95.57 |
| Area 4 | \$91.00 | \$118.60 | | \$146.15 | | | \$104.60 | \$106.81 |
| Drop Ship Price All Regions and Delivery locations | \$75.00 | \$100.00 | | \$40.00 | | | \$40.00 | \$5139.25 |

| <p align="center">Bag (Super/Jumbo Sacks) Prices</p> <p>Prices are in US dollars (\$) and volumes are in 2205 pounds/unit. Areas are Maintenance Areas within a WSDOT Region. Product packaging for Solid Categories 4, 5, 7, 8(a) and 8(b) are bag unit pricing delivered in truckload quantities. * NOTE: Category 7, special pricing for orders with delivery 7-14 days \$1318.00.</p> | | | | | |
|--|----------|------|------------|----------|------------|
| PNS Category | 4 | 5 | 7 | 8a | 8b |
| Contractors | Cargill | None | Cryotech | Cargill | Envirotech |
| Region 1, Northwest | | | | | |
| Area 1 | \$175.09 | | \$1463.00* | \$134.52 | |
| Area 2 | \$175.45 | | \$1463.00* | \$132.42 | |
| Area 3 | \$175.37 | | \$1463.00* | \$134.34 | |
| Area 4 | \$167.77 | | \$1463.00* | \$124.74 | |
| Area 5 | \$167.77 | | \$1463.00* | \$124.74 | |
| Region 2, North Central | | | | | |
| Area 1 | \$173.71 | | | \$128.40 | \$155.01 |
| Area 2 | \$167.35 | | | \$124.32 | \$145.80 |
| Area 3 | \$173.53 | | | \$131.36 | \$153.10 |
| Region 3, Olympic | | | | | |
| Area 1 | \$161.77 | | \$1463.00* | \$122.28 | |
| Area 2 | \$167.83 | | \$1463.00* | \$124.80 | |
| Area 3 | \$178.63 | | \$1463.00* | \$132.35 | |
| Area 4 | \$165.43 | | \$1463.00* | \$122.40 | |
| Region 4, Southwest | | | | | |
| Area 1 | \$153.19 | | \$1463.00* | \$111.60 | |
| Area 2 | \$157.03 | | \$1463.00* | \$114.00 | |
| Area 3 | \$161.83 | | \$1463.00* | \$118.80 | |
| Area 4 | \$159.43 | | \$1463.00* | \$116.40 | |
| Region 5, South Central | | | | | |
| Area 1 | \$165.79 | | | \$124.08 | \$155.92 |
| Area 2 | \$163.51 | | | \$122.88 | \$160.44 |
| Area 3 | \$163.39 | | | \$120.36 | \$150.15 |
| Area 4 | \$173.05 | | | \$127.25 | \$159.51 |
| Region 6, Eastern | | | | | |
| Area 1 | \$170.85 | | | \$129.60 | \$157.61 |
| Area 2 | \$172.23 | | | \$129.54 | \$157.14 |
| Area 3 | \$169.35 | | | \$126.60 | \$147.93 |
| Area 4 | \$178.39 | | | \$138.30 | \$166.09 |
| Drop Ship Price All Regions and Delivery locations | \$40 | | 50.00 | \$40.00 | \$5,779.37 |

| CITY OF SPOKANE PRICE SHEET | | | | | |
|---|---|---|------------------------|--------------------------------------|--|
| Category 1 - Liquid Magnesium Chloride | | | | | |
| Contractor – Dustbusters, Inc. | | | | | |
| Location | | Storage Capacity | Est. Qty (Tons) | Unit Bid Price | |
| 1 | Road Department Northside Satellite 4101 E. Queen Spokane, Washington | 36,000 gal | 2,000 | \$91.00 | |
| 2 | Contractor's off-site Storage Site/Facility: | 64,000 gal. | 6,000 | \$87.00 | |
| | Bidder is to identify Contractor' storage site and guaranteed storage quantity at this site: | Address: 101 North Havana Spokane, WA 99202 | | Storage Quantity: 120,000 gallons | |

OFFICE OF STATE PROCUREMENT

VIII. PERFORMANCE REPORT

To OSP Customers:

Please take a moment to let us know how our services have measured up to your expectations on this contract. Please copy this form locally as needed and forward to the Office of State Procurement Purchasing Manager. For any comments marked unacceptable, please explain in remarks block.

| Procurement services provided: | Excellent | Good | Acceptable | Unacceptable |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| ➤ Timeliness of contract actions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ Professionalism and courtesy of staff | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ Services provided met customer needs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ Knowledge of procurement rules and regulations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ Responsiveness/problem resolution | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ➤ Timely and effective communications | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments: _____

Agency: _____

Prepared by: _____

Title: _____

Contract No.: **07904** _____

Date: _____

Contract Title: **Road Snow and Ice Control Products**

Phone: _____

=====

Send to:

Purchasing Manager
Office of State Procurement
PO Box 41017
Olympia, Washington 98504-1017

PRODUCT/SERVICE PERFORMANCE REPORT

Complete this form to report problems with suppliers or to report unsatisfactory product or services. You are also encouraged to report superior performance. Agency personnel should contact suppliers in an effort to resolve problems themselves prior to completion and submission of this report.

Contract number and title: 07904, Road Snow and Ice Control Products

Supplier's name: _____ Supplier's representative: _____

PRODUCT/SERVICE:

- | | |
|---|--|
| <input type="checkbox"/> Contract item quality higher than required | <input type="checkbox"/> Damaged goods delivered |
| <input type="checkbox"/> Contract item quality lower than required. | <input type="checkbox"/> Item delivered does not meet P.O./contract specifications |
| <input type="checkbox"/> Other: | |

SUPPLIER/CONTRACTOR PERFORMANCE:

- | | |
|---|---|
| <input type="checkbox"/> Late delivery | <input type="checkbox"/> Slow response to problems and problem resolution |
| <input type="checkbox"/> Incorrect invoice pricing. | <input type="checkbox"/> Superior performance |
| <input type="checkbox"/> Other: | |

CONTRACT PROVISIONS:

- | | |
|--|---|
| <input type="checkbox"/> Terms and conditions inadequate | <input type="checkbox"/> Additional items or services are required. |
| <input type="checkbox"/> Specifications need to be revised | <input type="checkbox"/> Minimum order too high. |
| <input type="checkbox"/> Other: | |

Briefly describe situation: _____

| | | | |
|---------------------|----------------------|---------------------------|--------------------|
| Agency Name: | | Delivery Location: | |
| Prepared By: | Phone Number: | Date: | Supervisor: |
| | | | |

.....
Send To:

OFFICE OF STATE PROCUREMENT
PO BOX 41017
OLYMPIA WA 98504-1017